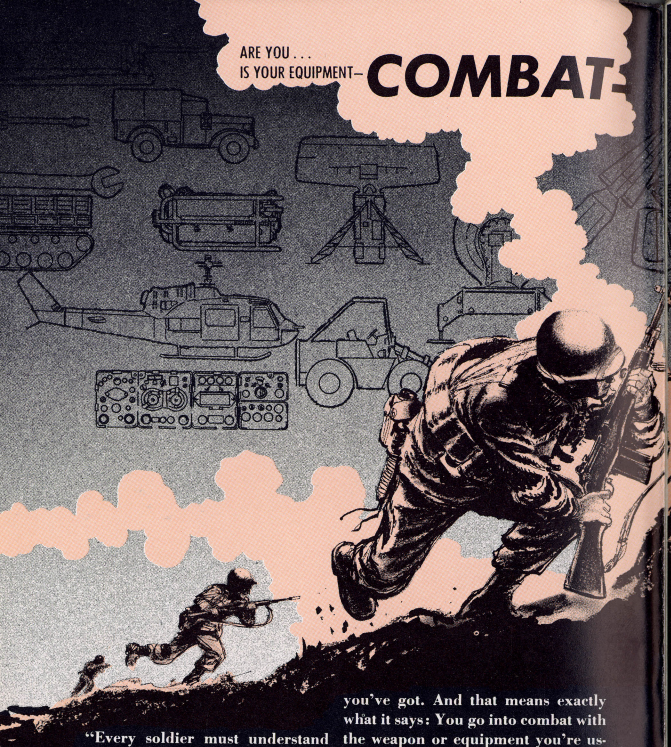
Issue 122
PS
1963 Series
THE PREVENTIVE MAINTENANCE MONTHLY
YES SIR I'VE READ AR 750-1500-8 ON CANNIBALIZATION, WHY?
ARMY
ARMY
ARMY
BUT FELLERS
AHH, NO SWEAT KIDDO, Y'CAN ORDER A NEW ONE ANYTIME. YOUR LOAD AIN'T GOIN' ANYWHERE THIS MONTH!
JUST FOR T'MORROW'S INSPECTION ... I'LL (ER) RETURN IT ON THURSDAY!
SPECIAL ARTICLE
"THE HANGAR QUEEN"
SEE PAGE 29

"Every soldier must understand that he may have to fight tomorrow with the equipment he is using today."

That's what The Man said.

And it's just like Half-Mast has been preaching — You go with what you've got. And that means exactly what it says: You go into combat with the weapon or equipment you're using when the whistle blows.

So, in order to fight with the equipment you've got on hand now, one real important thing has to be done—day-in, day-out: It's got to be kept maintained. And maintained right.

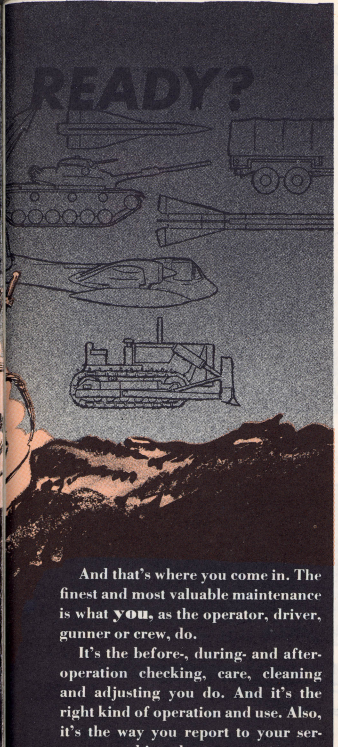


"Every soldier must understand that he may have to fight tomorrow with the equipment he is using today."

That's what The Man said.

And it's just like Half-Mast has been preaching — You go with what you've got. And that means exactly what it says: You go into combat with the weapon or equipment you're using when the whistle blows.

So, in order to fight with the equipment you've got on hand now, one real important thing has to be done—day-in, day-out; It's got to be kept maintained. And maintained right.



And that's where you come in. The finest and most valuable maintenance is what **you**, as the operator, driver, gunner or crew, do.

It's the before-, during- and after-operation checking, care, cleaning and adjusting you do. And it's the right kind of operation and use. Also, it's the way you report to your sergeant anything that crops up wrong that you can't take care of. He'll call the mechanic or armorer.

You've got to keep your equipment combat-ready. Anything less, and you'll lose your dog-tags — for keeps.

PS THE PREVENTIVE MAINTENANCE MONTHLY

Issue No. 122 1963 Series

Published by the Department of the Army for the information of organizational maintenance and supply personnel. Distribution is made through normal publication channels. Within limits of availability, older issues may be obtained direct from PS Magazine, Fort Knox, Kentucky.

IN THIS ISSUE

ARTICLES

Features	Page
M151 ¼-ton Truck: Be Your Own Inspector	4-19
DA Pamphlet 310-4	24-28
Mohawk (AO-1) Ejection Seat	50-53
Communications Equipment	
Generator Sets PU-286A/G & PU-286B/G	41
T-195 Transmitter: Service Selector Manual to Chanel 7 Switch	42-45
RT-66, 67 & 68/GRC Radios: Meter Switch S301 RF Check	45
S-56 ( )/G & S-69 ( )/GRC Shelters: Lifting Straps	46
BB-401/U Bery Terminal Links: Making 'em Fit	47
Modulator Oscillator Group OA-2180/FRT-51	48
AN/GRC-19 Radio Set: Prevent a Short	49
Turn Radio Off When Starting Engine	49
Aircraft	
APH-5 Flying Helmet: Holding the Liner In	54
Bird Dog (L-19): Loose Bomb Shackle Adapters	55
DA Form 2408-5: When to List a TCTM or MWO	56-59
New A/C Mechanic's Tool List	59
Wheeled Vehicles	
M151 Truck: Speedometer Cable Hookup	2
¾-ton G-741 Truck: Tow Job Musts	21
¼-ton Truck Tire Pressure With M40 RR	38-39
Armament	
BAR: Buffer Group Right-Lock Washer	2-3
M14 Rifle & M60 MG: 7.62 Blank Firing Attachments	3
M60 Machine Gun: Automatic Fire Trigger Hold	23
M1 & M14 Rifles: Rear Sight Elevation Knobs	22-23
General	
Hol-Gar 5KW Generator: Carbon Buildup	40
Champion CE 36-10 Air Compressor	61
Diesel Engines: Timing Fuel Injection Pumps	62
4D Huber-Warco Grader: Correct Fuel Gage	62
Ponton Boats: Check Aluminum Hull Keels	63
24-volt Electrical Systems: How to Disconnect	64

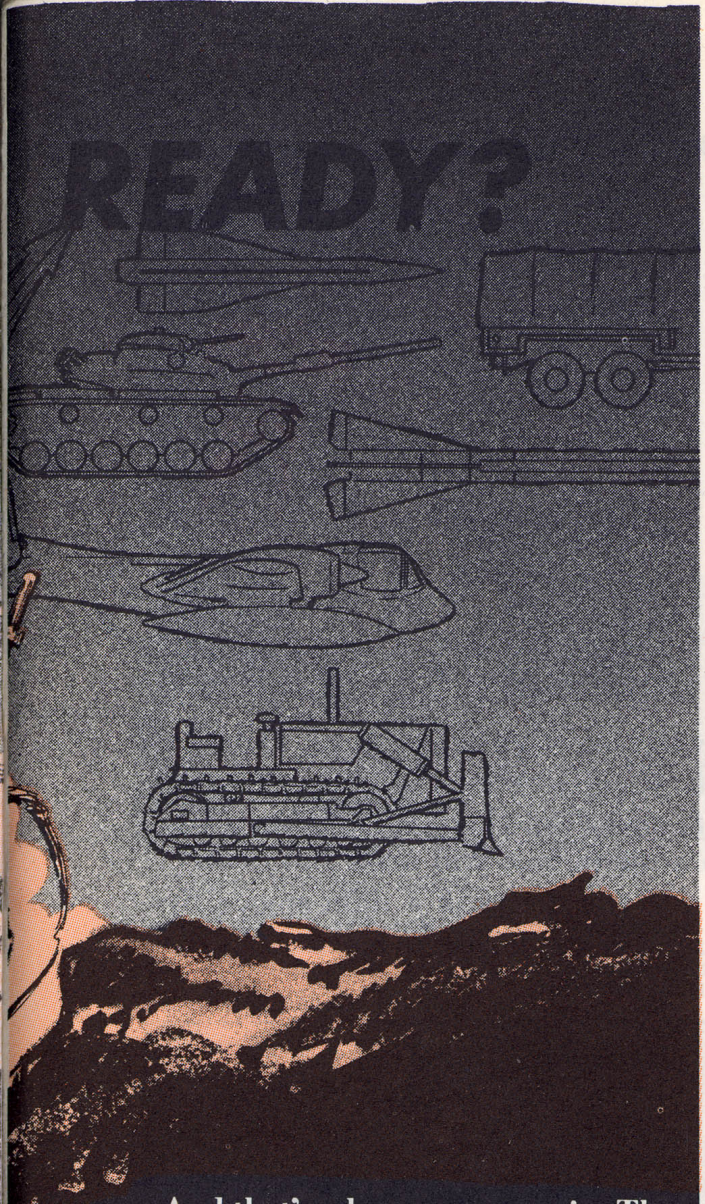
DEPARTMENTS

Connie Rodd	20
Joe's Dope	29
Question and Answer	37
Connie Rodd's Briefs	Inside Back Cover

PS wants your ideas and contributions, and is glad to answer your questions. Names and addresses are kept in confidence. Just write to:

Sgt Half-Mast,
PS Magazine,
Fort Knox, Ky.

Use of funds for printing of this publication has been approved by Headquarters, Department of the Army, 4 April 1962. DISTRIBUTION: In accordance with requirements submitted on DA Form 12-4.



And that's where you come in. The finest and most valuable maintenance is what you, as the operator, driver, gunner or crew, do.

It's the before-, during- and after-operation checking, care, cleaning and adjusting you do. And it's the right kind of operation and use. Also, it's the way you report to your sergeant anything that crops up wrong that you can't take care of. He'll call the mechanic or armorer.

You've got to keep your equipment combat-ready. Anything less, and you'll lose your dog-tags — for keeps.

PS THE PREVENTIVE MAINTENANCE MONTHLY

Issue No. 122 1963 Series

Published by the Department of the Army for the information of organizational maintenance and supply personnel. Distribution is made through normal publication channels. Within limits of availability, older issues may be obtained direct from PS Magazine, Fort Knox, Kentucky.

IN THIS ISSUE

ARTICLES

Features	Page
M151 ¼-ton Truck: Be Your Own Inspector	4-19
DA Pamphlet 310-4	24-28
Mohawk (AO-1) Ejection Seat	50-53
Communications Equipment	
Generator Sets PU-286A/G & PU-286B/G	41
T-195 Transmitter: Service Selector Manual to Chanel 7 Switch	42-45
RT-66, 67 & 68/GRC Radios: Meter Switch S301 RF Check	45
S-56 ( )/G & S-69 ( )/GRC Shelters: Lifting Straps	46
BB-401/U Battery Terminal Links: Making 'em Fit	47
Modulator-Oscillator Group OA-2180/FRT-51	48
AN/GRC-19 Radio Set: Prevent a Short	49
Turn Radio Off When Starting Engine	49
Aircraft	
APH-5 Flying Helmet: Holding the Liner In	54
Bird Dog (L-19): Loose Bomb Shackle Adapters	55
DA Form 2408-5: When to List a TCTM or MWO	56-59
New A/C Mechanic's Tool List	59
Wheeled Vehicles	
M151 Truck: Speedometer Cable Hookup	2
¾-ton G-741 Truck: Tow Job Musts	21
¼-ton Truck Tire Pressure With M40 RR	38-39
Armament	
BAR: Buffer Group Right-Lock Washer	2-3
M14 Rifle & M60 MG: 7.62 Blank Firing Attachments	3
M60 Machine Gun: Automatic Fire Trigger Hold	23
M1 & M14 Rifles: Rear Sight Elevation Knobs	22-23
General	
Hol-Gar 5KW Generator: Carbon Buildup	40
Champion CE 36-10 Air Compressor	61
Diesel Engines: Timing Fuel Injection Pumps	62
4D Huber-Warco Grader: Correct Fuel Gage	62
Ponton Boats: Check Aluminum Hull Keels	63
24-volt Electrical Systems: How to Disconnect	64

DEPARTMENTS

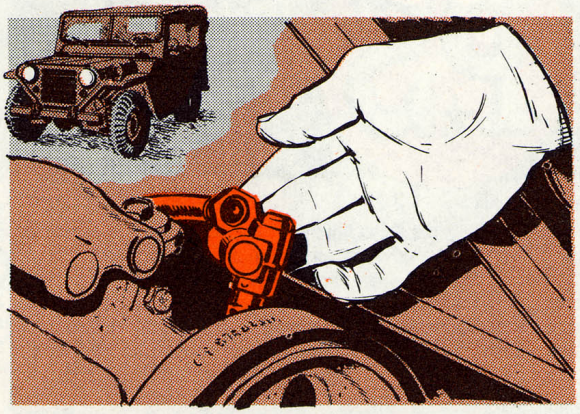
Connie Rodd	20
Joe's Dope	29
Question and Answer	37
Connie Rodd's Briefs	Inside Back Cover

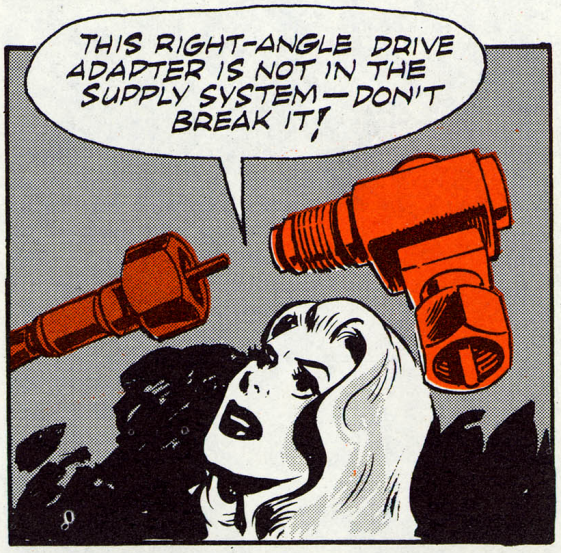
PS wants your ideas and contributions, and is glad to answer your questions. Names and addresses are kept in confidence. Just write to:

Sgt Half-Mast,
PS Magazine,
Fort Knox, Ky.

Use of funds for printing of this publication has been approved by Headquarters, Department of the Army, 4 April 1962. DISTRIBUTION: In accordance with requirements submitted on DA Form 12-4.

M151 speedometer drive



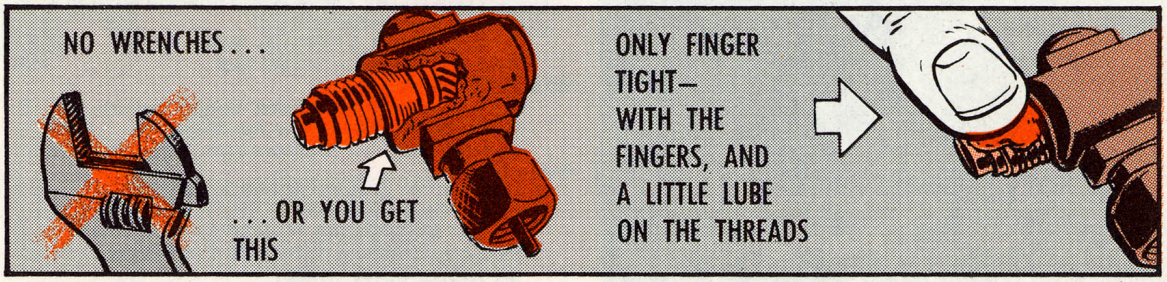


Don't be a Samson when you hookup or unhook the speedometer cable on your M151 ¼-ton truck. Unless you know all the angles you'll ruin the speedometer right-angle-drive adapter.

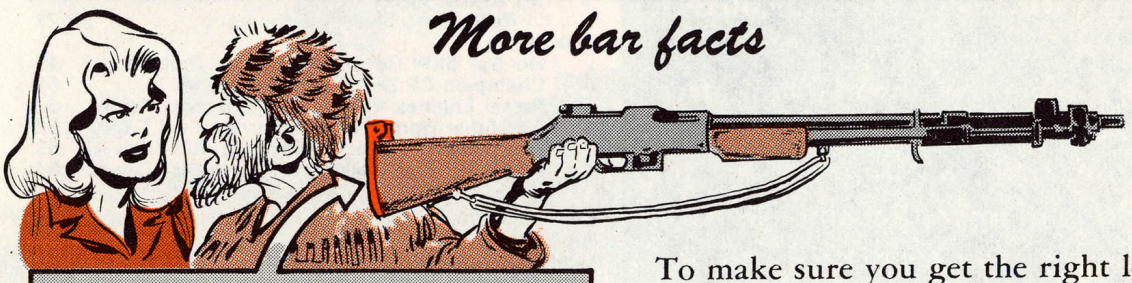
This item (Ord Part No. 10885535) is not in the supply system, so if you break it you've got troubles.

Never, but **never**, use a wrench on it because it's made of pot-metal and will snap when overtorqued. Tighten it finger-tip tight only. And use only your fingers when loosening it. A little lube on the threads will make this easier.

If you do break a right-angle-drive adapter you'll have to replace it by cannibalization.



More bar facts



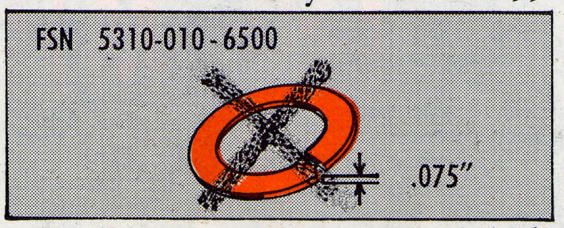
ASK FOR FSN 5310-013-1203

ASK SUPPORT PEOPLE TO MIKE THEM BEFORE INSTALLING THEM.

To make sure you get the right lock washer for the buffer group of your Browning automatic rifle, ask for FSN 5310-013-1203. That's the FSN to use instead of FSN 5310-010-6500.

The thickness of the FSN 5310-013-1203 washer is .099-in minimum to .109-in maximum.

There are some FSN 5310-010-6500 lock washers that may fall in the .099-



in minimum—.109-in maximum thickness range but most washers stocked under this FSN are either below the minimum or above the maximum thickness allowable.

FSN 5310-013-1203 should get you a washer that's in the .099-in minimum to .109-in maximum range. But, since there have been reports of local purchase issues under this FSN that are outside the right thickness range, ask your support people to mike any of these washers before you install 'em.

Amen, brother, amen.

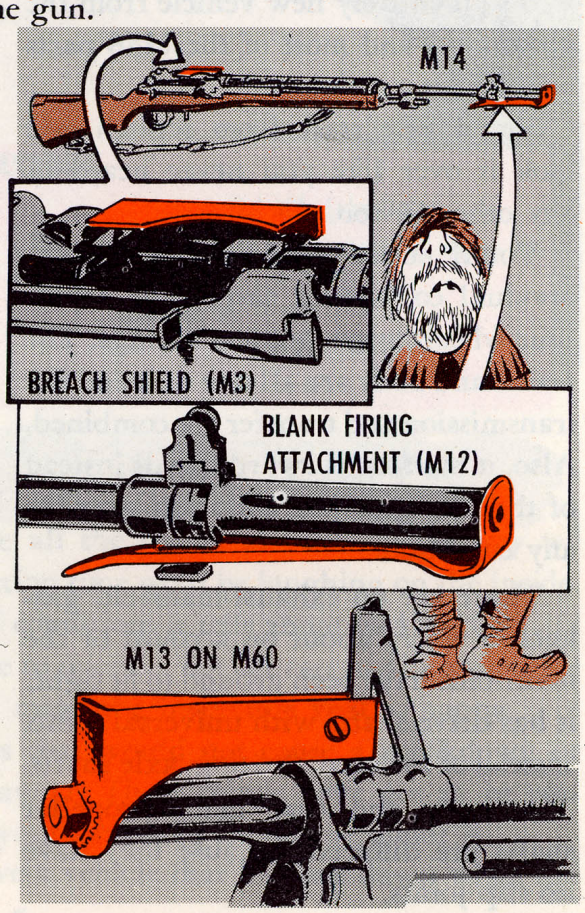
And here's the latest scoop on blank firing attachments for 7.62 ammo with both the M14 rifle and the M60 machine gun.

On the M14 rifle it's a two-for-one proposition . . .'cause FSN 1005-893-0902 gets you both the M12 blank firing attachment as well as the M3 breech shield.

And, natch, the blank firing attachment gets shoved into the flash suppressor and snapped over the bayonet lug while the breech shield is secured to the cartridge guide—like it says in TM 9-1005-223-12, May 61, (See PS 114, page 7, "Slow Down—Shoulders Ahead" if you have problems).

With the M60 machine gun, it's a horse of another color, and one FSN gets you one item.

In this case FSN 1005-893-0897 supplies you with only the M13 blank firing attachment. Just the muzzle piece is needed on the MG since its cover acts as the shield.



BE YOUR OWN INSPECTOR ON . . .

THE M151

Your new M151 military utility tactical truck is classy in the chassis and fast on the gas.

Compared to the M38 series ¼-tonners it is lighter, shorter, has more cargo space, a higher power-to-weight ratio, and will take you nearly a third further on the same amount of gas.

It's an entirely new vehicle from the ground up and most of the M38 parts won't fit it.

You'd best start from scratch and look it over like you never heard of any other ¼-ton.

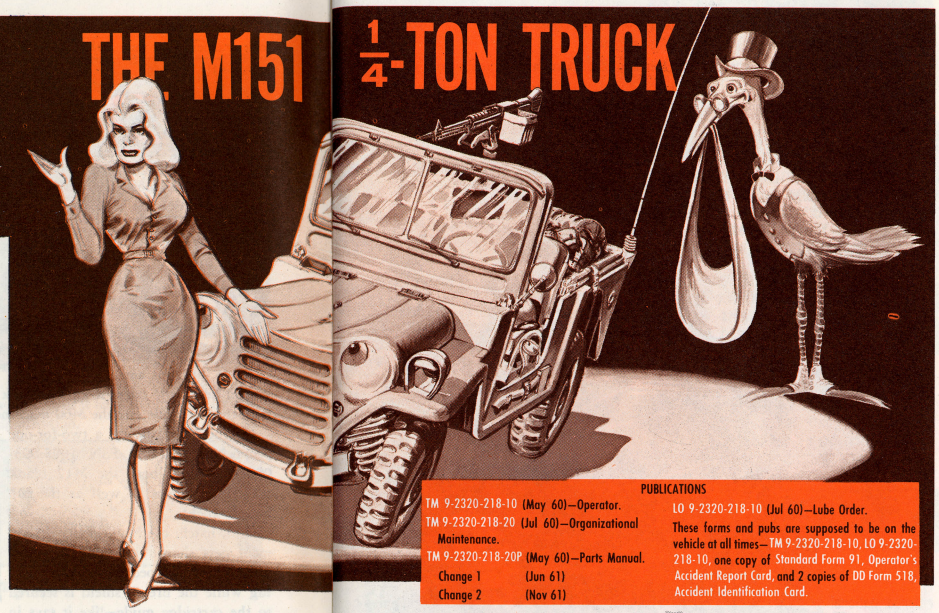
You'll notice right away it has individual coil-spring suspension on all four wheels instead of leaf springs. The frame and body are all one unit and the transmission and transfer are combined. Also, it has four forward speeds instead of three to give you the right gear for any condition.

There are no exhaust-manifold gaskets to worry about on account of the manifolds have been ground to fit tight; it has drive shafts with universal joints instead of inclosed, floating, axle shafts. The front and rear main propeller shafts are different because they have no slip joints.

Another difference is the fuel pump. Instead of a mechanical pump, the M151 has an electrical pump in the fuel tank. This pump has a safety circuit that prevents it from running if the ignition switch is left on with the engine not running. This safety circuit also turns off the pump if the engine oil pressure gets too low. The pump won't give you the gas to run unless conditions are right.

BE YOUR OWN INSPECTOR ON . . .

THE M151 ¼-TON TRUCK



Your new M151 military utility tactical truck is classy in the chassis and fast on the gas.

Compared to the M38 series ¼-tonners it is lighter, shorter, has more cargo space, a higher power-to-weight ratio, and will take you nearly a third further on the same amount of gas.

It's an entirely new vehicle from the ground up and most of the M38 parts won't fit it.

You'd best start from scratch and look it over like you never heard of any other ¼-ton.

You'll notice right away it has individual coil-spring suspension on all four wheels instead of leaf springs. The frame and body are all one unit and the transmission and transfer are combined. Also, it has four forward speeds instead of three to give you the right gear for any condition.

There are no exhaust-manifold gaskets to worry about on account of the manifolds have been ground to fit tight; it has drive shafts with universal joints instead of inclosed, floating, axle shafts. The front and rear main propeller shafts are different because they have no slip joints.

Another difference is the fuel pump. Instead of a mechanical pump, the M151 has an electrical pump in the fuel tank. This pump has a safety circuit that prevents it from running if the ignition switch is left on with the engine not running. This safety circuit also turns off the pump if the engine oil pressure gets too low. The pump won't give you the gas to run unless conditions are right.

PUBLICATIONS

TM 9-2320-218-10 (May 60)—Operator.
TM 9-2320-218-20 (Jul 60)—Organizational Maintenance.
TM 9-2320-218-20P (May 60)—Parts Manual.
Change 1 (Jun 61)
Change 2 (Nov 61)
LO 9-2320-218-10 (Jul 60)—Lube Order.

These forms and pubs are supposed to be on the vehicle at all times—TM 9-2320-218-10, LO 9-2320-218-10, one copy of Standard Form 91, Operator's Accident Report Card, and 2 copies of DD Form 518, Accident Identification Card.

CHECK HER OVER

The M151 also has . . . but let's take all the points in order. That way we won't miss anything, and comes inspection time we'll be laughing on the inside.

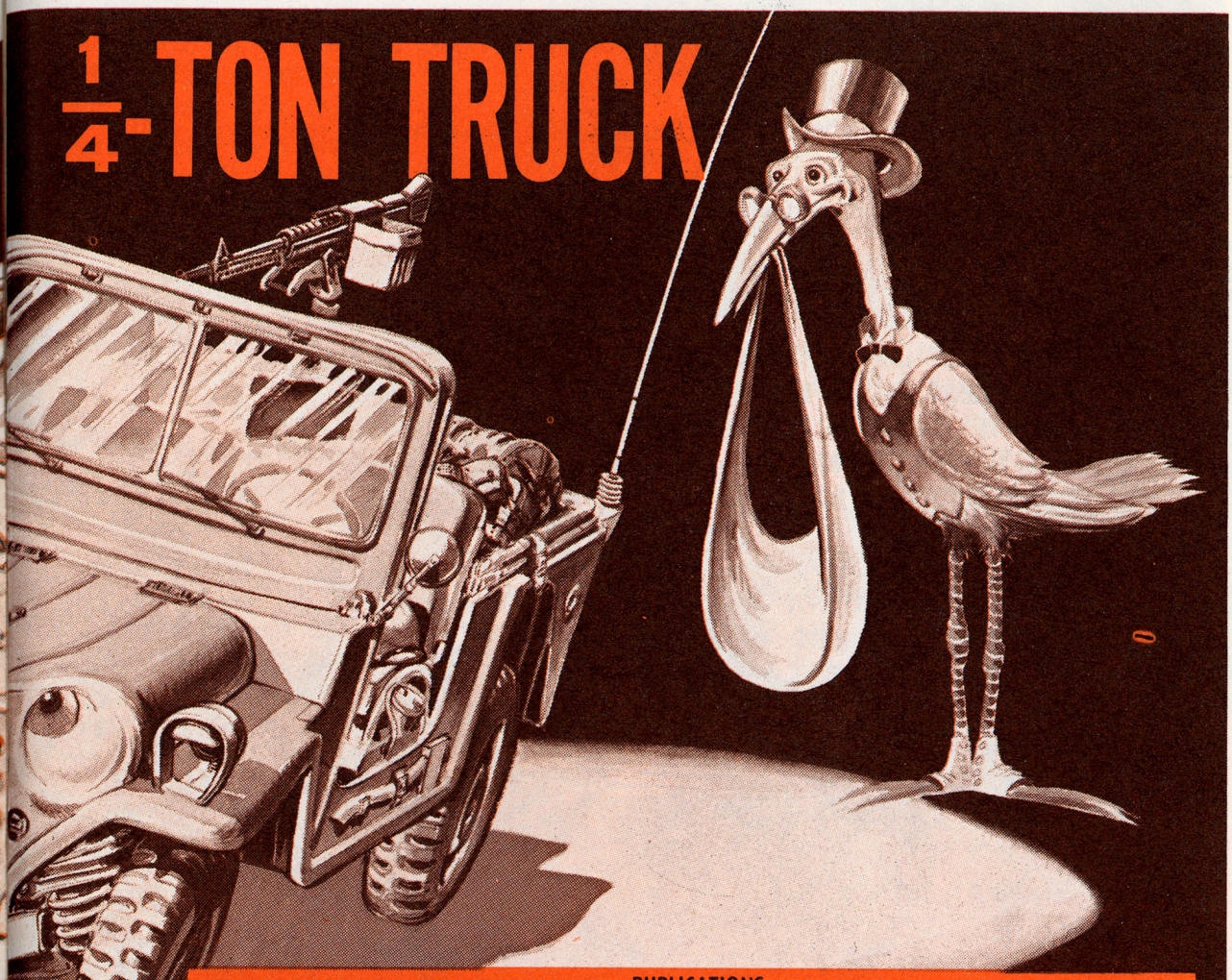
The inspectors look for the kinds of conditions it tells about in AR 750-8 . . . conditions that make the vehicle unsafe to operate, not operate at all, or operate so further damage is caused. All these make the inspectors **real** unhappy.

They will also notice smaller things that would not cause a breakdown or keep you from operating in a safe manner. These things have got to be corrected as time permits, but don't get your brakes in an uproar about it.

The serious conditions mean you have a vehicle that'll break down when the

PS MORE

1/4-TON TRUCK



PUBLICATIONS

TM 9-2320-218-10 (May 60)—Operator.
TM 9-2320-218-20 (Jul 60)—Organizational Maintenance.
TM 9-2320-218-20P (May 60)—Parts Manual.
Change 1 (Jun 61)
Change 2 (Nov 61)

LO 9-2320-218-10 (Jul 60)—Lube Order.

These forms and pubs are supposed to be on the vehicle at all times—TM 9-2320-218-10, LO 9-2320-218-10, one copy of Standard Form 91, Operator's Accident Report Card, and 2 copies of DD Form 518, Accident Identification Card.

CHECK HER OVER

The M151 also has . . . but let's take all the points in order. That way we won't miss anything, and comes inspection time we'll be laughing on the inside.

The inspectors look for the kinds of conditions it tells about in AR 750-8 . . . conditions that make the vehicle unsafe to operate, not operate at all, or operate so further damage is caused. All these make the inspectors **real** unhappy.

They will also notice smaller things that would not cause a breakdown or keep you from operating in a safe manner. These things have got to be corrected as time permits, but don't get your brakes in an uproar about it.

The serious conditions mean you have a vehicle that'll break down when the

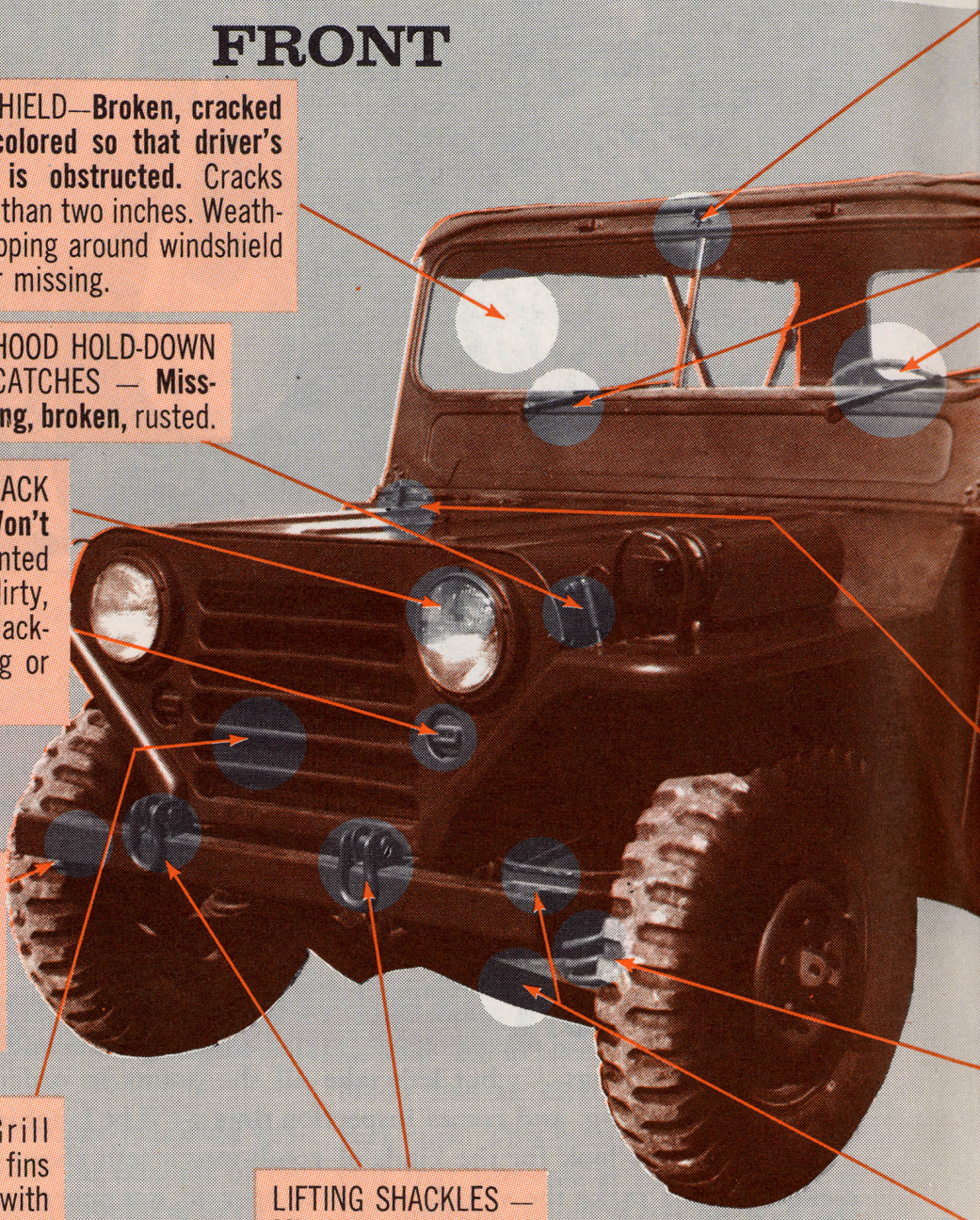
PS MORE

going gets rough, or a vehicle that's dangerous to operate. Either way it's your neck, so you're the guy who sees that it gets fixed.

To make them easier to spot, the serious trouble spots that the inspectors will be mainly looking for are in **bold type.**

Let's start from the front and work all the way around the vehicle.

FRONT



WINDSHIELD—**Broken, cracked or discolored so that driver's vision is obstructed.** Cracks longer than two inches. Weather stripping around windshield torn or missing.

HOOD HOLD-DOWN CATCHES — **Missing, broken,** rusted.

HEADLIGHTS & BLACK OUT LIGHTS — **Won't work, cracked,** painted over, clouded, dirty, contain water, blackout shield missing or not in place.

BUMPERS — Badly bent, loose, cracked, national or unit markings missing.

RADIATOR — Grill mashed or broken, fins mashed, clogged with insects, **leaks,** check for corner leaks at the upper and lower tank to tube joints.

LIFTING SHACKLES — Missing, stuck, bent, loose, won't move, safety pin or chain missing.

going gets rough, or a vehicle that's dangerous to operate. Either way it's your neck, so you're the guy who sees that it gets fixed.

To make them easier to spot, the serious trouble spots that the inspectors will be mainly looking for are in **bold type.**

Let's start from the front and work all the way around the vehicle.

FRONT

WINDSHIELD—**Broken, cracked or discolored so that driver's vision is obstructed.** Cracks longer than two inches. Weather stripping around windshield torn or missing.

HOOD HOLD-DOWN CATCHES — **Missing, broken,** rusted.

HEADLIGHTS & BLACK OUT LIGHTS — **Won't work, cracked,** painted over, clouded, dirty, contain water, blackout shield missing or not in place.

BUMPERS — Badly bent, loose, cracked, national or unit markings missing.

RADIATOR — Grill mashed or broken, fins mashed, clogged with insects, **leaks,** check for corner leaks at the upper and lower tank to tube joints.

LIFTING SHACKLES — Missing, stuck, bent, loose, won't move, safety pin or chain missing.

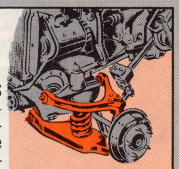
HOOD SAFETY-CATCH — Bent, **broken, missing,** not aligned right. (Always have this engaged when you're working on the motor. That hood could slam down and break your neck.)

WINDSHIELD WIPERS — **Blades missing, arms broken,** rubber hardened or dead.

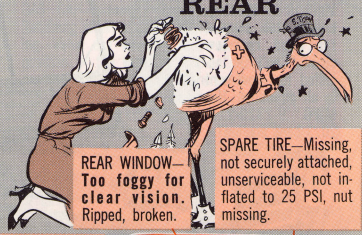
COWL VENT — Cowl vent handle broken off, screen missing, clogged, rusted in place.

COIL SPRINGS (front) — Damaged, **not properly seated.**

SUSPENSION ARMS (upper and lower) — Bent, **cracked,** damaged. (Check these often during cross-country operation.)



REAR



REAR WINDOW— **Too foggy for clear vision.** Ripped, broken.

SPARE TIRE—Missing, not securely attached, unserviceable, not inflated to 25 PSI, nut missing.

REFLECTOR — Broken, **missing,** painted over.

PINTLE — Can't be opened. Loose, not lubed. Spring broken.

TRAILER COUPLING RECEPTACLE — Male coupling prongs will not make good contact. Cover missing.

STOPLIGHT AND TAILLIGHT—Glass broken, painted over, **not operating.**

BUMPERETTES — Badly bent, loose, rusty, broken, bolts missing.

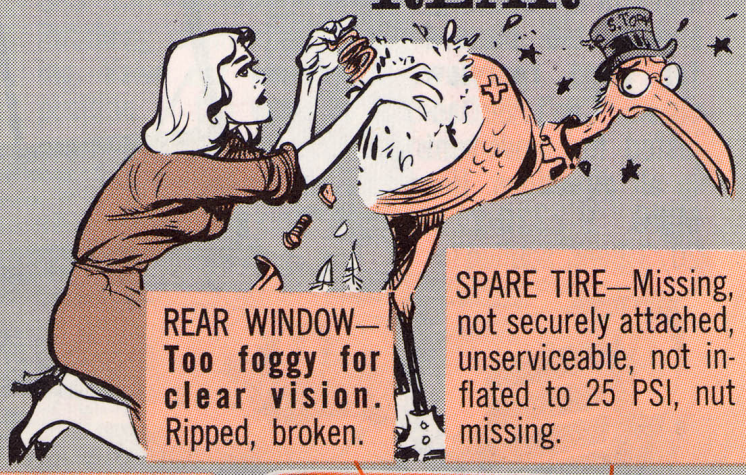
LIFTING SHACKLES — Missing, stuck, bent, loose, safety pin or chain missing.

GASOLINE CAN — Rusted, retaining straps in bad condition, cap retaining chain missing, not attached.

MORE

REAR

HOOD SAFETY-CATCH — Bent, **broken, missing,** not aligned right. (Always have this engaged when you're working on the motor. That hood could slam down and break your neck.)



REAR WINDOW— **Too foggy for clear vision.** Ripped, broken.

SPARE TIRE—Missing, not securely attached, unserviceable, not inflated to 25 PSI, nut missing.

WINDSHIELD WIPERS — **Blades missing, arms broken,** rubber hardened or dead.

REFLECTOR — Broken, **missing,** painted over.

PINTLE — Can't be opened. Loose, not lubed. Spring broken.

TRAILER COUPLING RECEPTACLE — Male coupling prongs will not make good contact. Cover missing.

COWL VENT — Cowl vent handle broken off, screen missing, clogged, rusted in place.

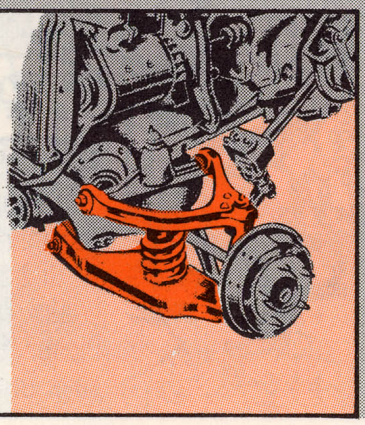
STOPLIGHT AND TAILLIGHT—Glass broken, painted over, **not operating.**

BUMPERETTES — Badly bent, loose, rusty, broken, bolts missing.

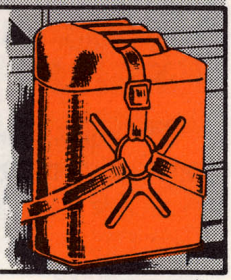
LIFTING SHACKLES — Missing, stuck, bent, loose, safety pin or chain missing.

COIL SPRINGS (front) — Damaged, **not properly seated.**

SUSPENSION ARMS (upper and lower) — Bent, **cracked,** damaged. (Check these often during cross-country operation.)



GASOLINE CAN — Rusted, retaining straps in bad condition, cap retaining chain missing, not attached.



P.S. MORE

MIRROR — **Missing, broken, too clouded for good rearview vision.** Can't be adjusted for movement in all directions. Has MWO 9-2320-218-20/3 been applied?

LEFT

WARNING SIGN — "Caution. Do not overfill. Allow for expansion." Must be present and readable.

UNDER

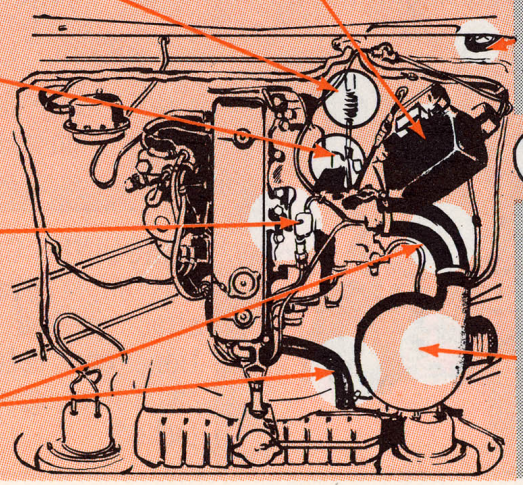
THROTTLE-LINKAGE BOOT—Torn, cracked.

LINKAGE—To accelerator, throttle and choke—binds, too much slack.

ENGINE VENTILATION-VALVE — Connections tight. Threads stripped.

HOSES—On air cleaner and radiator, rubber cracked or dead, **leaks,** clamps not secure.

GENERATOR REGULATOR— **Mountings loose, seal broken or missing.**



MASTER CYLINDER — Gook around the fill plug. (Clean around it before you open it.) Hydraulic fluid not up to right level. (Should be 5/8 inch below the filler plug holes.) Vent hole not open.

EVERY CHANCE YOU GET... GIVE THESE THE "EYE"!

AIR CLEANER — Element in bad shape and oil not up to the mark. More than 1/4 inch of dirt in bottom of cleaner. Leaks. Intake screen missing, loose. (Service cleaner like it says in your LO.)

LEFT SIDE

MIRROR — **Missing, broken, too clouded for good rearview vision.** Can't be adjusted for movement in all directions. Has MWO 9-2320-218-20/3 been applied?

WARNING SIGN — "Caution. Do not overfill. Allow for expansion." Must be present and readable.

GAS CAP—**Missing.** Wings smashed. Retaining chain missing. Gasket missing. Valve **not working** or in wrong position. If the valve is in the OPEN position and there is pressure on the cap when you try to loosen it, the valve is not working. (Normally open. Closed for fording and to prevent vapor lock.) Strainer missing, rusted, or broken. Gas level too high. (Must be at least two inches below top of tank.)

REFLECTOR — Broken, **missing,** painted over.

FIRE EXTINGUISHER—(When so equipped). **Not filled, not in operating condition.** Bracket missing or not in good condition.

PIONEER TOOLS—Axe not present, rusted, mounting brackets damaged. Straps missing or unserviceable.

UNDER

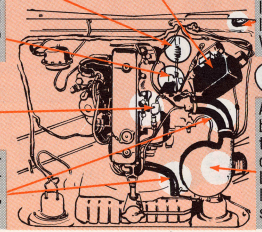
THROTTLE-LINKAGE BOOT—Torn, cracked.

GENERATOR REGULATOR—**Mountings loose, seal broken or missing.**

LINKAGE—To accelerator, throttle and choke—binds, too much slack.

ENGINE VENTILATION-VALVE — Connections tight. Threads stripped.

HOSES—On air cleaner and radiator, rubber cracked or dead, **leaks,** clamps not secure.



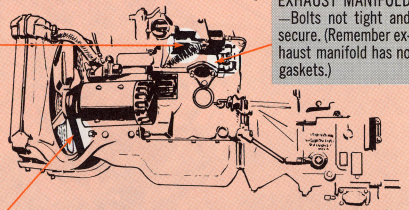
MASTER CYLINDER — Gook around the fill plug. (Clean around it before you open it.) Hydraulic fluid not up to right level. (Should be ⅝ inch below the filler plug holes.) Vent hole not open.

EVERY CHANCE YOU GET... GIVE THESE THE "EYE!"

AIR CLEANER — Element in bad shape and oil not up to the mark. More than ¼ inch of dirt in bottom of cleaner. Leaks. Intake screen missing, loose. (Service cleaner like it says in your LO.)

THE HOOD (LEFT SIDE)

INTAKE MANIFOLD — Bolts not tight and secure. Gaskets leak.

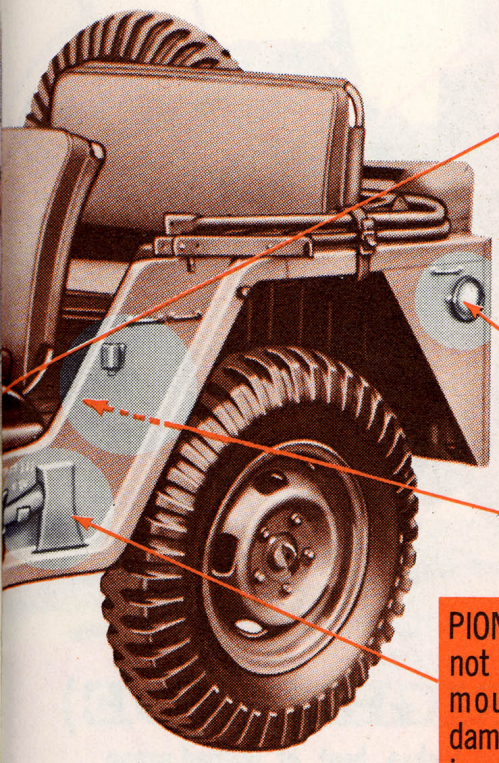


EXHAUST MANIFOLD —Bolts not tight and secure. (Remember exhaust manifold has no gaskets.)

FAN-BELT TENSION OK? — Halfway between the water pump and generator pulley it should take a 20-25 lb pull to deflect the belt ½ inch. Or place a straight edge over water pump and generator pulleys and move the generator until the belts have a measured ½ inch deflection when you push down firmly with the hand. When you get the adjustment right, tighten the mounting bolts and generator adjustment bolt.

DO MORE

SIDE

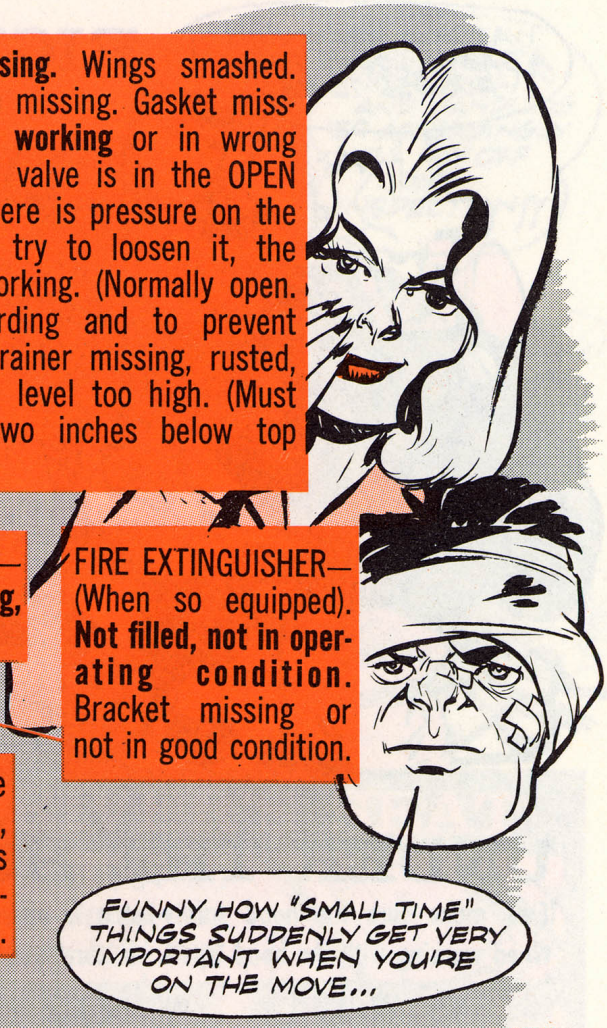


GAS CAP—**Missing.** Wings smashed. Retaining chain missing. Gasket missing. Valve **not working** or in wrong position. If the valve is in the OPEN position and there is pressure on the cap when you try to loosen it, the valve is not working. (Normally open. Closed for fording and to prevent vapor lock.) Strainer missing, rusted, or broken. Gas level too high. (Must be at least two inches below top of tank.)

REFLECTOR — Broken, **missing,** painted over.

FIRE EXTINGUISHER—(When so equipped). **Not filled, not in operating condition.** Bracket missing or not in good condition.

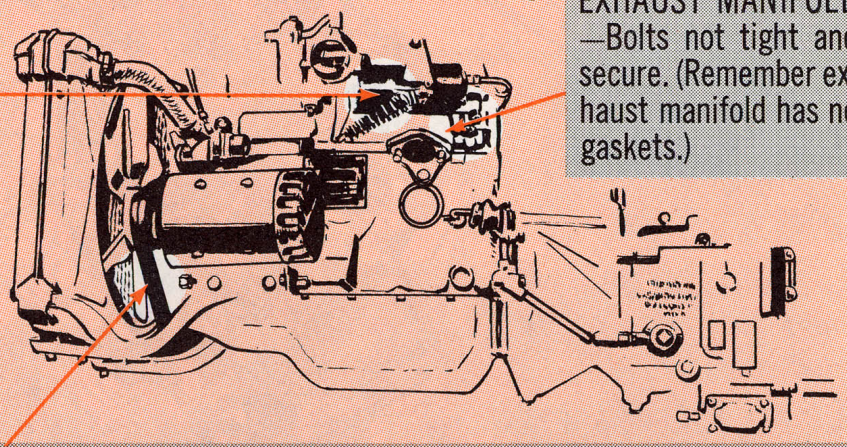
PIONEER TOOLS—Axe not present, rusted, mounting brackets damaged. Straps missing or unserviceable.



THE HOOD (LEFT SIDE)

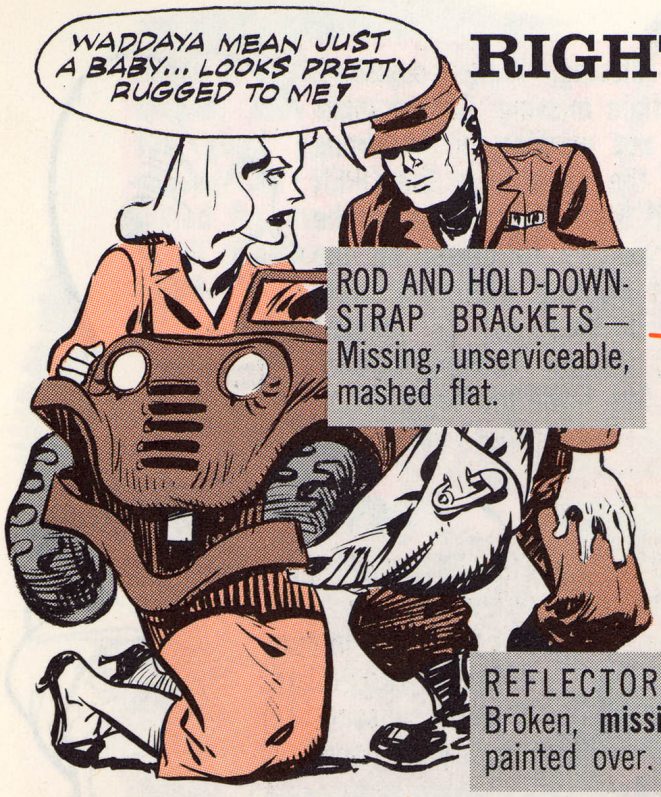
INTAKE MANIFOLD — Bolts not tight and secure. Gaskets leak.

EXHAUST MANIFOLD —Bolts not tight and secure. (Remember exhaust manifold has no gaskets.)



FAN-BELT TENSION OK? — Halfway between the water pump and generator pulley it should take a 20-25 lb pull to deflect the belt ½ inch. Or place a straight edge over water pump and generator pulleys and move the generator until the belts have a measured ½ inch deflection when you push down firmly with the hand. When you get the adjustment right, tighten the mounting bolts and generator adjustment bolt.

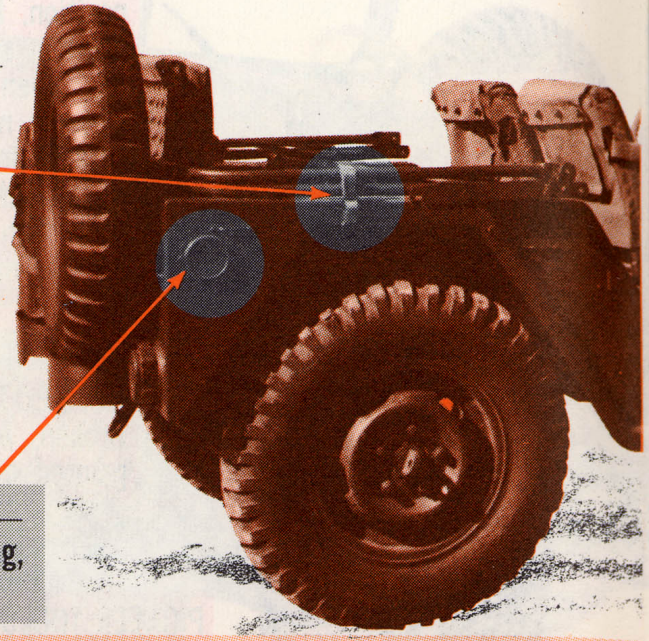
P.S. MORE



RIGHT SIDE

ROD AND HOLD-DOWN-STRAP BRACKETS — Missing, unserviceable, mashed flat.

REFLECTOR — Broken, **missing,** painted over.



UNDER THE HOOD (RIGHT SIDE)

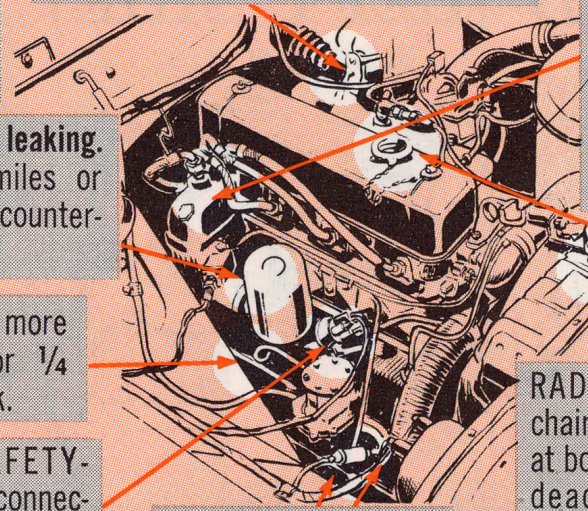
(First make sure the hood safety-catch is operating right and is not broken, bent, or aligned wrong. When working with the hood open be sure you have the safety catch engaged.)

SPARK PLUGS — Cracked, loose. Gook in cylinder-head recesses. Cables not in good condition and secure.

LINKAGE—To accelerator, throttle and choke, binding, too slack.

DISTRIBUTOR—**Cracked, broken, wires loose.** (Have it lubed every 6,000 miles or semi-annually like it says on page 11 of LO 9-2320-218-10 (Jul 60).)

OIL FILTER — Loose, **leaking.** (Replace every 6,000 miles or semi- annually. Turn counter-clockwise to remove.)



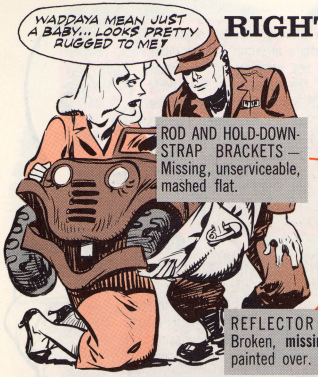
OIL DIP-STICK—Oil more than 1/2 inch below or 1/4 inch above FULL mark.

OIL-PRESSURE SAFETY-SWITCH — Electrical connectors not tight and secure. (A lot of male connectors have been getting broken during normal separation of male and female connectors . . . so take it easy.)

HEADLIGHTS & HORN —Male and female connectors not tight and in order.

RADIATOR — Radiator-cap chain missing, not attached at both ends. Insulator rubber dead or cracked. Radiator coolant below the right level. (Should at least cover the baffle in the top tank.) Should be slightly below bottom of filler neck. Major leaks in tanks or tubes.

RIGHT SIDE

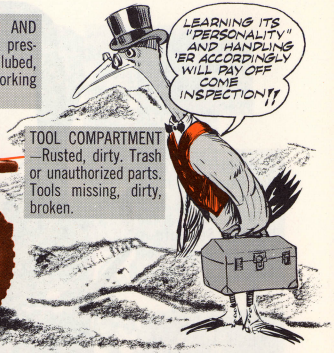


ROD AND HOLD-DOWN-STRAP BRACKETS — Missing, unserviceable, mashed flat.

REFLECTOR — Broken, **missing**, painted over.

HINGE-LOCK-PIN AND RETAINER — Not present, not lightly lubed, not in good working order.

TOOL COMPARTMENT — Rusted, dirty. Trash or unauthorized parts. Tools missing, dirty, broken.



PIONEER TOOLS — Shovel missing, unserviceable. Straps and buckles missing, unserviceable.

UNDER THE HOOD (RIGHT SIDE)

(First make sure the hood safety-catch is operating right and is not broken, bent, or aligned wrong. When working with the hood open be sure you have the safety catch engaged.)

SPARK PLUGS — Cracked, loose. Gook in cylinder-head recesses. Cables not in good condition and secure.

LINKAGE — To accelerator, throttle and choke, binding, too slack.

DISTRIBUTOR — **Cracked, broken, wires loose.** (Have it lubed every 6,000 miles or semi-annually like it says on page 11 of LO 9-2320-218-10 (Jul 60).)

OIL FILTER — Loose, **leaking.** (Replace every 6,000 miles or semi- annually. Turn counter-clockwise to remove.)

OIL DIP-STICK — Oil more than ½ inch below or ¼ inch above FULL mark.

OIL-PRESSURE SAFETY-SWITCH — Electrical connectors not tight and secure. (A lot of male connectors have been getting broken during normal separation of male and female connectors . . . so take it easy.)

HEADLIGHTS & HORN — Male and female connectors not tight and in order.

RADIATOR — Radiator-cap chain missing, not attached at both ends. Insulator rubber dead or cracked. Radiator coolant below the right level. (Should at least cover the baffle in the top tank.) Should be slightly below bottom of filler neck. Major leaks in tanks or tubes.

WATER-TEMPERATURE SENDING-UNIT — Not tight and secure. **(Take it easy when you disconnect. The male connector breaks if you don't handle it gentle-like.)**

OIL FILLER-CAP — Not securely attached with chain. Gasket seal not airtight. (Note: If air is leaking around this gasket, your crankcase is not being ventilated right.)

DRIVER'S SEAT

SEAT ADJUSTING KNOBS — Do not turn freely on both front seats. Threads not lightly lubed. Adjust the seat so driver's heel touches the floor naturally.

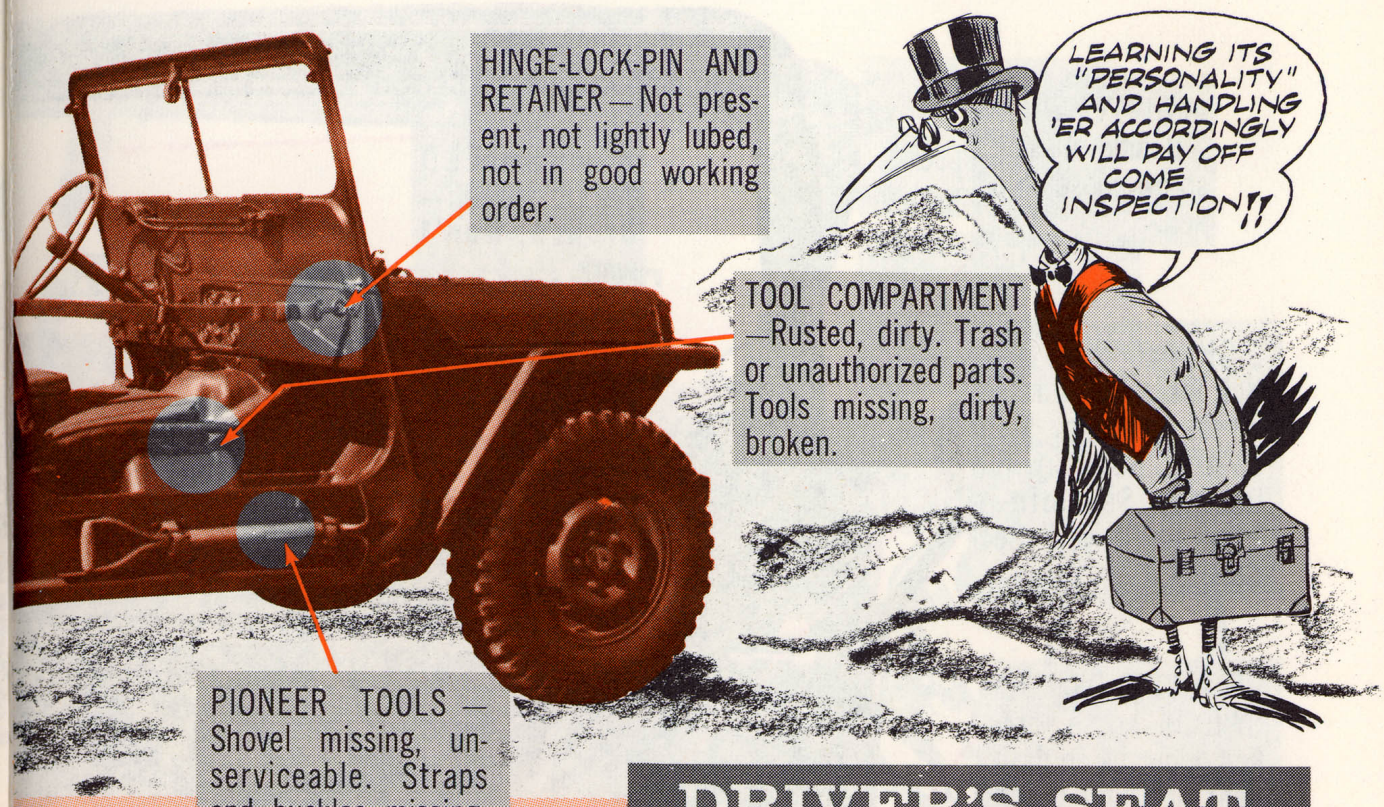
UPHOLSTERY — Seat canvas torn or cut, padding exposed, split seams.

MORE

HINGE-LOCK-PIN AND RETAINER—Not present, not lightly lubed, not in good working order.

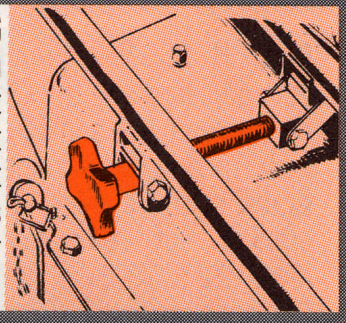
TOOL COMPARTMENT—Rusted, dirty. Trash or unauthorized parts. Tools missing, dirty, broken.

PIONEER TOOLS—Shovel missing, unserviceable. Straps and buckles missing, unserviceable.

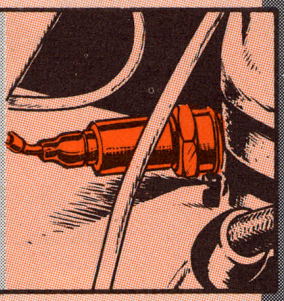


DRIVER'S SEAT

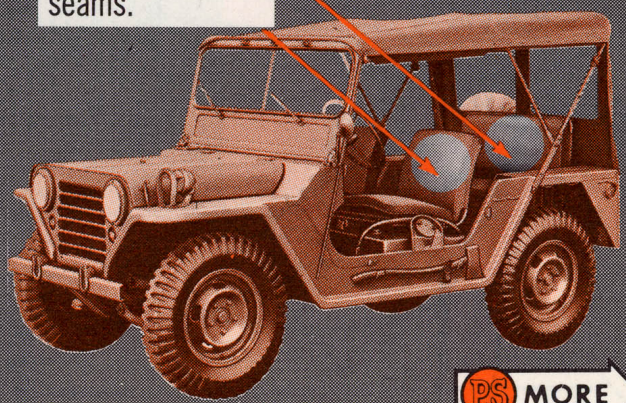
SEAT ADJUSTING KNOBS—Do not turn freely on both front seats. Threads not lightly lubed. Adjust the seat so driver's heel touches the floor naturally.



WATER-TEMPERATURE SENDING-UNIT—Not tight and secure. **(Take it easy when you disconnect. The male connector breaks if you don't handle it gentle-like.)**



UPHOLSTERY—Seat canvas torn or cut, padding exposed, split seams.



OIL FILLER-CAP—Not securely attached with chain. Gasket seal not airtight. (Note: If air is leaking around this gasket, your crankcase is not being ventilated right.)

PS MORE

IN THE

IGNITION SWITCH —**Handle missing,** screw loose, broken.

WINDSHIELD WIPER MOTOR— **Broken, won't work.**

LIGHTING SWITCH— **Not operating,** cracked, **levers missing.** Main switch moves when locked. (See info in "Tips for Driver" Section.)

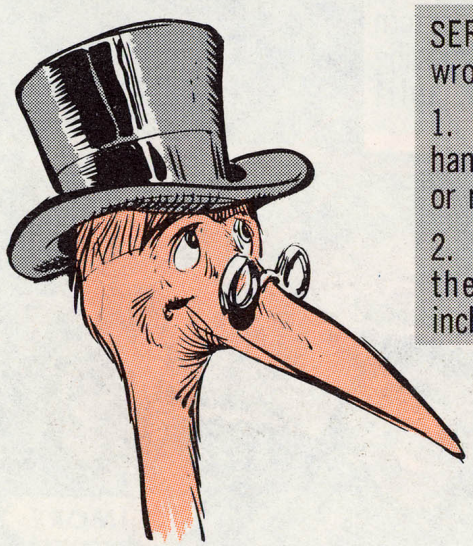
HORN — **Broken,** loose, **won't work.**

DATA PLATE— Missing, rusted, painted over.

HEADLIGHT DIMMER-SWITCH—Loose, **broken,** indicator in dash does not light up on high beam.

CLUTCH PEDAL — Free play not adjusted right. (Should be between 1⅛ and 1½ inch with starter bracket removed.) **Grabs, chatters, slips.** Starter bracket not removed. Has MWO 9-2320-218-20/1 (Sept 61) been applied?

STARTER—**Won't work,** rusted, loose.



I'M A DRIVER NOT A MECHANIC.

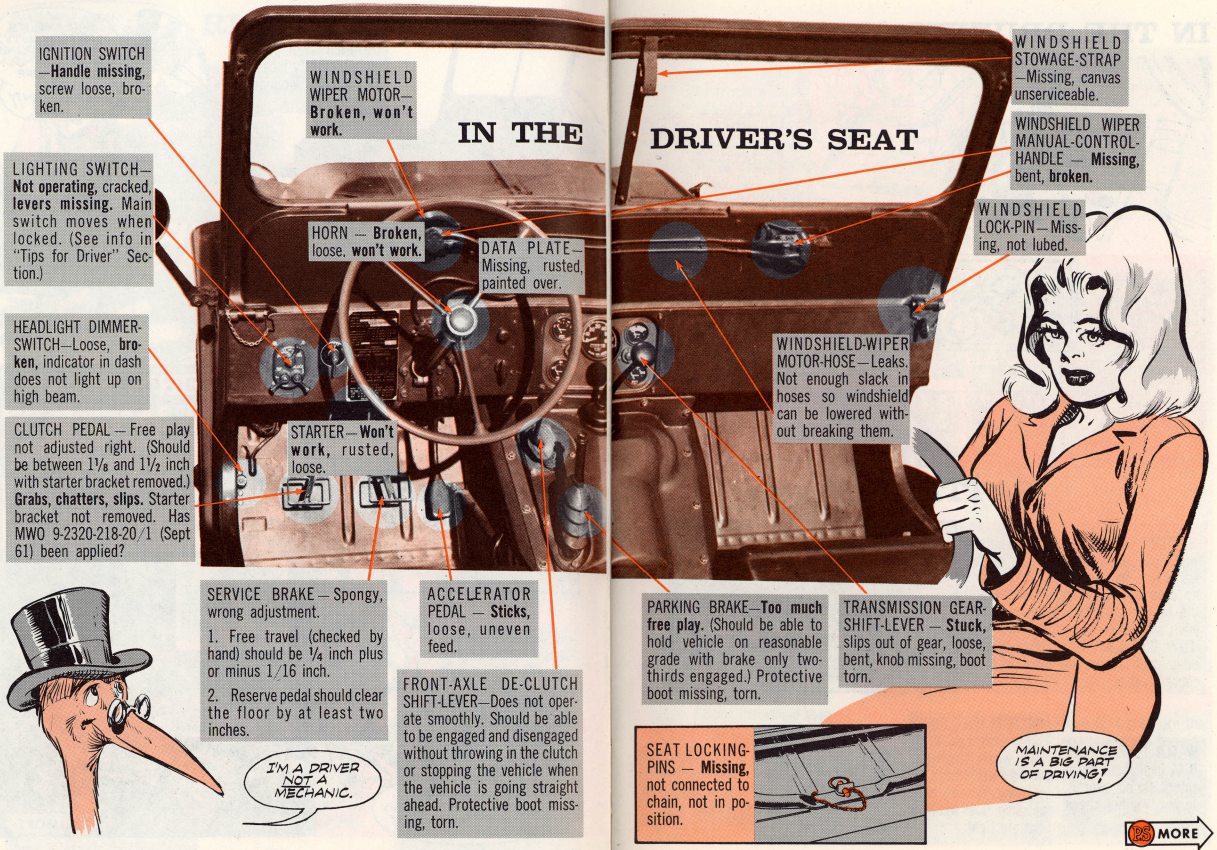
SERVICE BRAKE — Spongy, wrong adjustment.

1. Free travel (checked by hand) should be ¼ inch plus or minus 1/16 inch.
2. Reserve pedal should clear the floor by at least two inches.

ACCELERATOR PEDAL — **Sticks,** loose, uneven feed.

FRONT-AXLE DE-CLUTCH SHIFT-LEVER—Does not operate smoothly. Should be able to be engaged and disengaged without throwing in the clutch or stopping the vehicle when the vehicle is going straight ahead. Protective boot missing, torn.

IN THE DRIVER'S SEAT



IGNITION SWITCH—**Handle missing,** screw loose, broken.

WINDSHIELD WIPER MOTOR—**Broken, won't work.**

LIGHTING SWITCH—**Not operating,** cracked, **levers missing.** Main switch moves when locked. (See info in "Tips for Driver" Section.)

HORN—**Broken,** loose, **won't work.**

DATA PLATE—Missing, rusted, painted over.

HEADLIGHT DIMMER-SWITCH—Loose, **broken,** indicator in dash does not light up on high beam.

CLUTCH PEDAL—Free play not adjusted right. (Should be between 1 1/8 and 1 1/2 inch with starter bracket removed.) **Grabs, chatters, slips.** Starter bracket not removed. Has MWO 9-2320-218-20/1 (Sept 61) been applied?

STARTER—**Won't work,** rusted, loose.

SERVICE BRAKE—Spongy, wrong adjustment.

1. Free travel (checked by hand) should be 1/4 inch plus or minus 1/16 inch.

2. Reserve pedal should clear the floor by at least two inches.

ACCELERATOR PEDAL—**Sticks,** loose, uneven feed.

FRONT-AXLE DE-CLUTCH SHIFT-LEVER—Does not operate smoothly. Should be able to be engaged and disengaged without throwing in the clutch or stopping the vehicle when the vehicle is going straight ahead. Protective boot missing, torn.

I'M A DRIVER NOT A MECHANIC.

WINDSHIELD STOWAGE-STRAP—Missing, canvas unserviceable.

WINDSHIELD WIPER MANUAL-CONTROL-HANDLE—**Missing,** bent, **broken.**

WINDSHIELD LOCK-PIN—Missing, not lubed.

WINDSHIELD-WIPER MOTOR-HOSE—Leaks. Not enough slack in hoses so windshield can be lowered without breaking them.

PARKING BRAKE—**Too much free play.** (Should be able to hold vehicle on reasonable grade with brake only two-thirds engaged.) Protective boot missing, torn.

TRANSMISSION GEAR-SHIFT-LEVER—**Stuck,** slips out of gear, loose, bent, knob missing, boot torn.

SEAT LOCKING-PINS—**Missing,** not connected to chain, not in position.

MAINTENANCE IS A BIG PART OF DRIVING!

MORE

DRIVER'S SEAT

WINDSHIELD STOWAGE-STRAP—Missing, canvas unserviceable.

WINDSHIELD WIPER MANUAL-CONTROL-HANDLE — **Missing,** bent, **broken.**

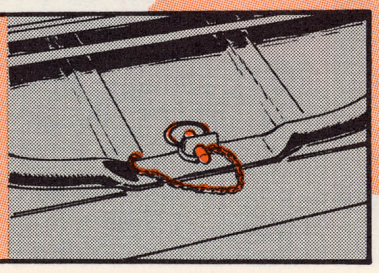
WINDSHIELD LOCK-PIN—Missing, not lubed.

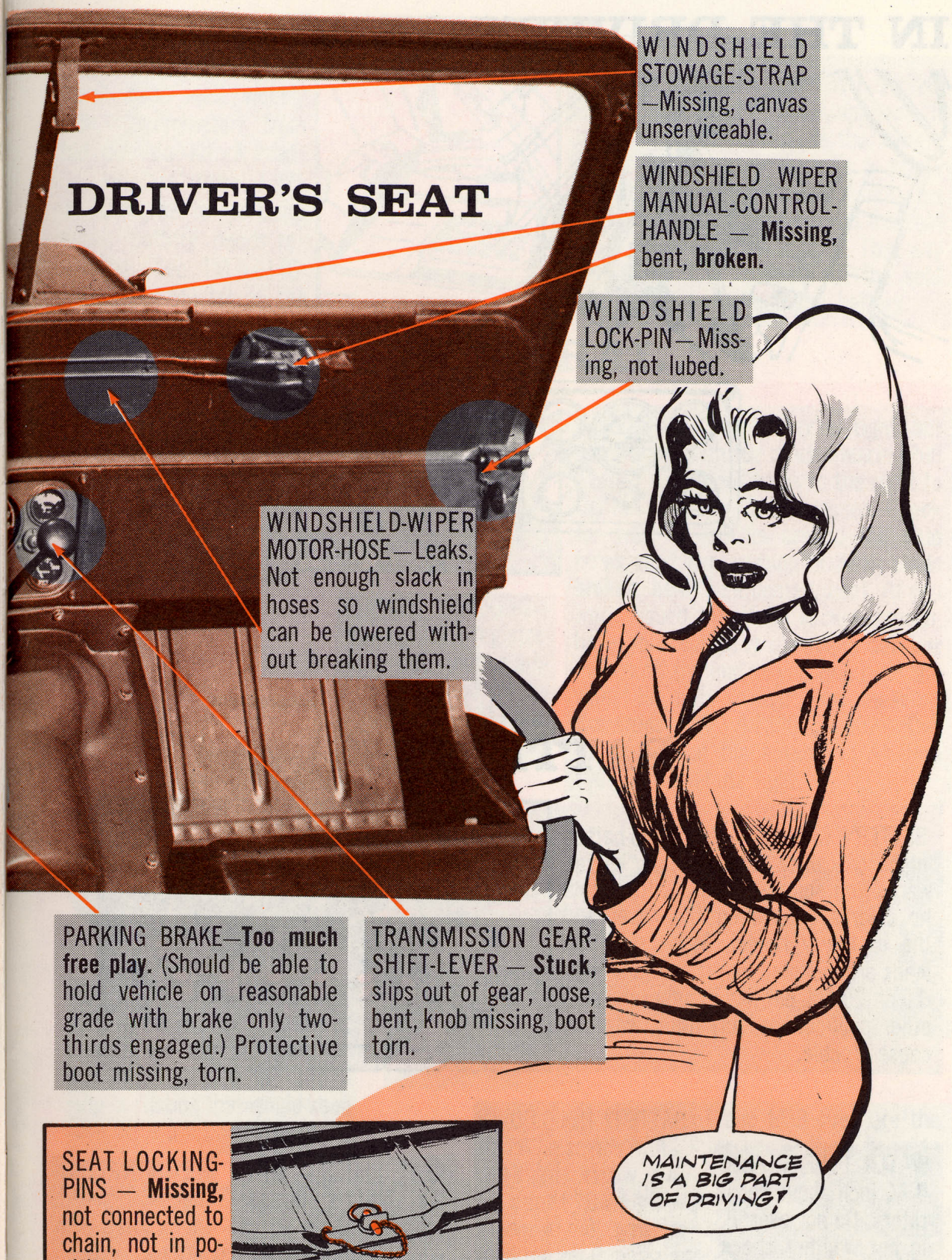
WINDSHIELD-WIPER MOTOR-HOSE—Leaks. Not enough slack in hoses so windshield can be lowered without breaking them.

PARKING BRAKE—**Too much free play.** (Should be able to hold vehicle on reasonable grade with brake only two-thirds engaged.) Protective boot missing, torn.

TRANSMISSION GEAR-SHIFT-LEVER — **Stuck,** slips out of gear, loose, bent, knob missing, boot torn.

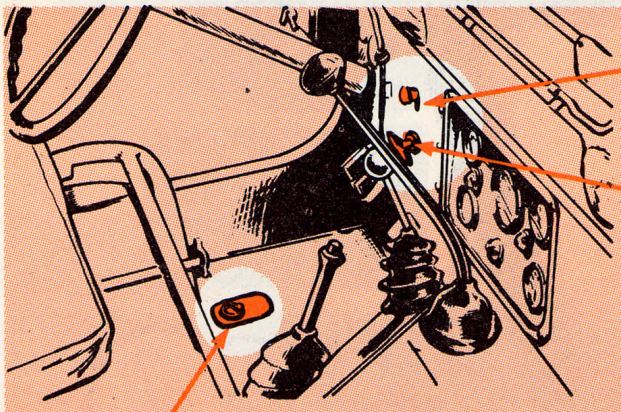
SEAT LOCKING-PINS — **Missing,** not connected to chain, not in position.





PS MORE

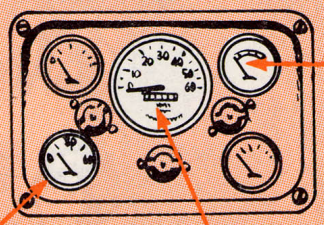
IN THE DRIVER'S SEAT CONTINUED



CHOKE CONTROL — **Not working, stuck.** Handle missing.

THROTTLE CONTROL— **Missing, not operating,** loose, stuck. Will not remain in pulled-out position.

FLOOR DRAINS— Not in open position, rusted shut, lifting loop missing.



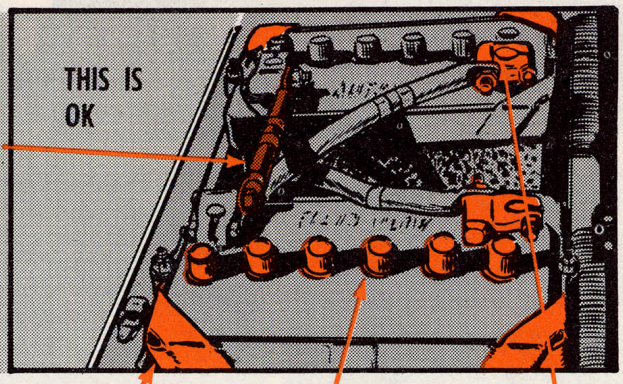
BAT-GEN INDICATOR—Lens cracked, painted over, **not working.** With the ignition switch OFF, the needle should be at the extreme left as you face the dial. When the ignition switch is turned ON, the needle should read anywhere from the middle of the YELLOW to the border of the YELLOW and GREEN, if your battery is OK. With engine IDLING, the needle should read as high as it reads with the engine OFF—or even slightly higher. With engine at operating speed the needle should move to the medium to high GREEN which shows that your generating system is operating right.

OIL-PRESSURE GAGE— Lens cracked, painted over, **not working. (With engine at idle it should register 15 to 30 PSI.)**

SPEEDOMETER & ODOMETER — Not working. Lens cracked or painted over.

BATTERIES

BATTERY CABLES — Battery-to-battery electrical cables were installed "bassackwards" on some vehicles, with almost no clearance between the cover and the battery terminal. Make sure the leads are installed like it shows in your -10 or -20 TM, **not** like it shows in some other publications. Any other way can cause trouble.



WATER LEVEL — Keep it ¾ inch above separators. Do not overfill. In hot weather check daily.

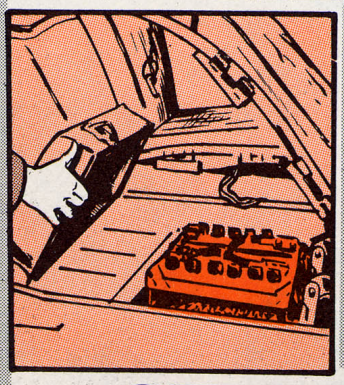
BATTERY HOLD-DOWN —Anti-corrosion coating worn through, wing nuts loose or **missing,** flat washers missing. **Does not hold battery tight.**

VENT PLUGS — **Missing, broken,** threads stripped, vents clogged. (Clean them out with a stiff wire.)

TERMINALS — Loose, cracked, not coated with grease.

BATTERIES CONTINUED

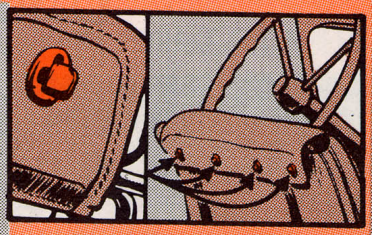
SPECIFIC GRAVITY—Check each cell weekly with hydrometer from 2nd echelon kit. A reading of less than 1.225 at 80-degree temperature means battery needs recharging. See TM 9-6140-200-15 (Jul 58) for all the dope on battery care.



BATTERY COVER—Has MWO 9-2320-218-20/4 (Dec 61) been applied? It makes it easier to remove the battery cover. Another new thing is a safety strap on the assistant driver's side. This strap can also be used to hold the seat in its forward tipped position. That way you won't have to take out the seat every time you check the battery.

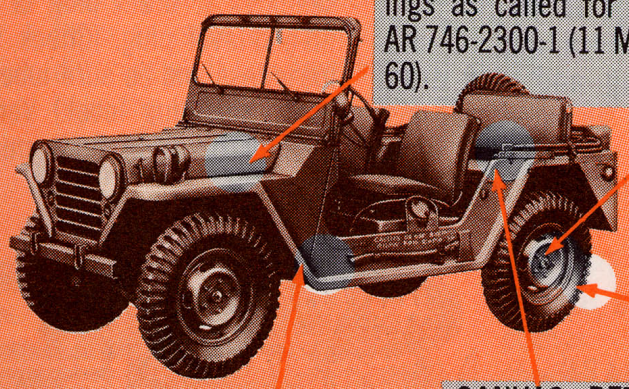
GENERAL

BUTTON FASTENERS—Check operation of turn-button fasteners on map-stowage pockets, should work freely.



WHEELS—Be sure they're tight but don't make with too much muscle. Pull wrench so the nut turns to the right to tighten or to the left to loosen. Check for wear or cracks around the stud holes, dust cap missing or bent, **studs broken,** bent. Rim dented, bent. (If you were issued the 15-in. socket wrench, have your company mechanic cut five inches off the end so you won't get the wheel lug nuts so tight they shear off the studs. MWO 9-2320-218-20/2 (Dec 61) gives him the authority.) Air-drop eyes and jam-nuts tight.

VEHICLE MARKING—No agency, registration, and unit markings as called for by AR 746-2300-1 (11 Mar 60).



TIRES—Inspect and check pressures often. Maintain these pressures:

	Front	Rear
Cross-country	18 lb	22 lb
Highway	20	25
Mud, sand, snow	12	18

CANVAS RETAINING-SLOTS—Check top and both sides of windshield and body the full length of the slots for flattening or rusting that would keep the slots from being used.

CANVAS RETAINING-BRACKETS—Missing, unserviceable, mashed.

This is important—M151 and M38 tires are the same size—but don't interchange them because the M151 tires are specially designed nylon, light weight for that vehicle. Be sure and rotate the tires every 2,000 miles. **Tread worn smooth** (time for recapping); **cut to fabric, uneven wear.** Valves bent, cap missing.

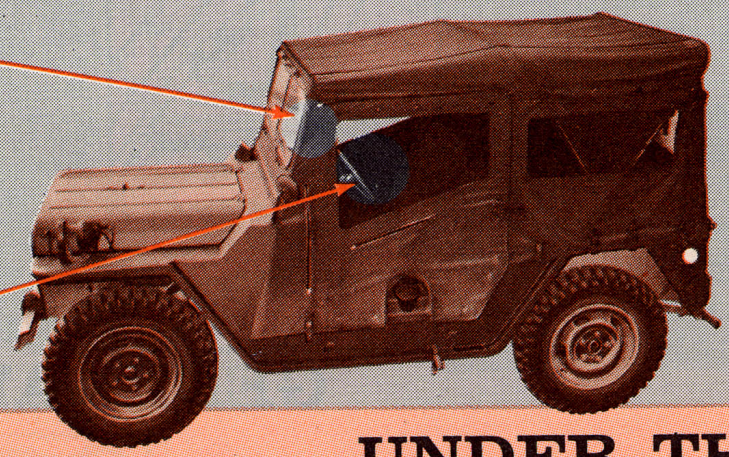
REAR-SEAT-RETAINING-PINS—Missing, not secured by chain.

PS MORE

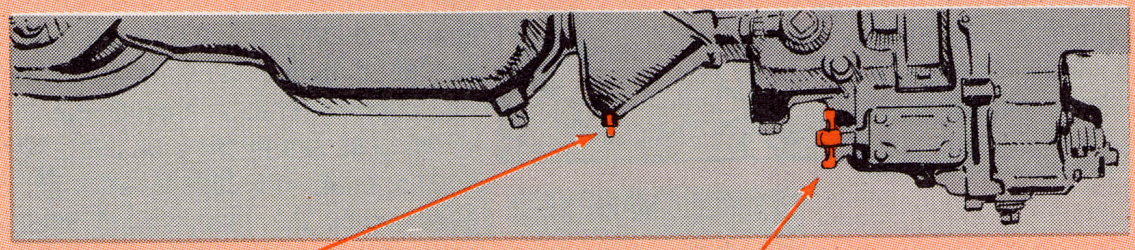
GENERAL

CANVAS—Parts missing; top, two side curtains, two side doors. Canvas not in good condition, mildewed, rips over two inches long. Button fasteners, straps and buckles missing or unserviceable.

WINDOWS—Rips, discoloration or cloudiness sufficient to prevent driver's vision.



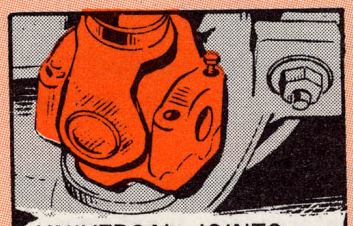
UNDER THE



FLYWHEEL HOUSING—Drain plug should be out except for fording. If you leave it in, oil will mess up your clutch. (On early production models keep it in the tool compartment under the right front seat. On late models there is a blind boss for it in the flywheel housing.)

TRANSMISSION & TRANSFER—**Leaking at plugs,** plugs loose. (Check one fill-and-level plug and two drain plugs.) Be sure you don't mistake the reverse-shift-lever pivot-pin for the transmission fill-plug.

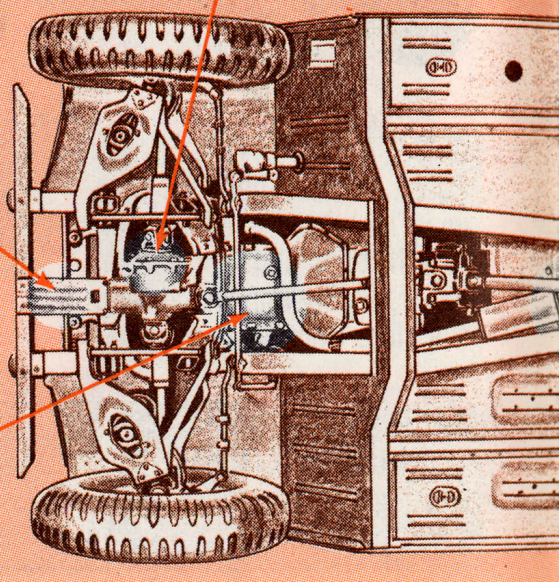
DIFFERENTIALS—**Leaking** (not seeping) at drain plug or at fill-and-level plug. (Check for looseness and be sure lube is up to the plug level.) Vents dirty or plugged. Bolts missing.



UNIVERSAL JOINTS—All propeller-shaft and axle-drive universal-joints lubed. Nuts and bolts at each joint **missing,** not tight.

FLANGE GUARD—Bent, screws loose, bolts, nuts, lockwashers or flatwashers missing.

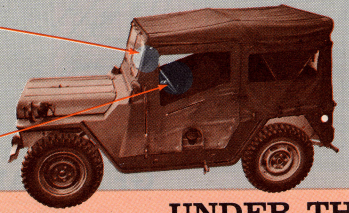
ENGINE OIL-PAN—**Leaking at plug, plug loose.** (Don't make with too much muscle when you put in this plug. Keep it under 50-ft-lb torque.)



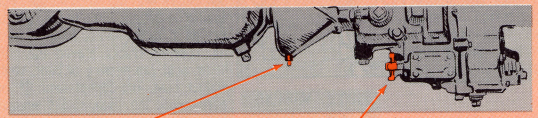
GENERAL

CANVAS—Parts missing; top, two side curtains, two side doors. Canvas not in good condition, mildewed, rips over two inches long. Button fasteners, straps and buckles missing or unserviceable.

WINDOWS—Rips, discoloration or cloudiness sufficient to prevent driver's vision.



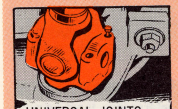
UNDER THE



FLYWHEEL HOUSING—Drain plug should be out except for fording. If you leave it in, oil will mess up your clutch. (On early production models keep it in the tool compartment under the right front seat. On late models there is a blind boss for it in the flywheel housing.)

TRANSMISSION & TRANSFER—**Leaking at plugs,** plugs loose. (Check one fill-and-level plug and two drain plugs.) Be sure you don't mistake the reverse-shift-lever pivot-pin for the transmission fill-plug.

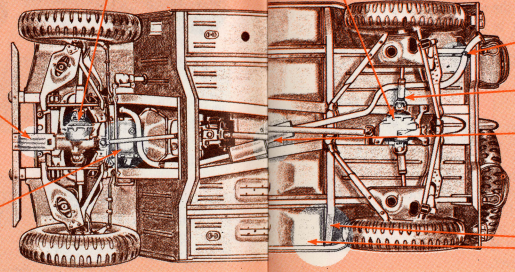
DIFFERENTIALS—**Leaking** (not seeping) at drain plug or at fill-and-level plug. (Check for looseness and be sure lube is up to the plug level.) Vents dirty or plugged. Bolts missing.



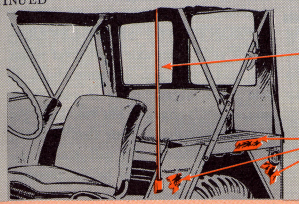
UNIVERSAL JOINTS—All propeller-shaft and axle-drive universal-joints lubed. Nuts and bolts at each joint **missing,** not tight.

FLANGE GUARD—Bent, screws loose, bolts, nuts, lockwashers or flatwashers missing.

ENGINE OIL-PAN—**Leaking at plug, plug loose.** (Don't make with too much muscle when you put in this plug. Keep it under 50-ft-lb torque.)



CONTINUED



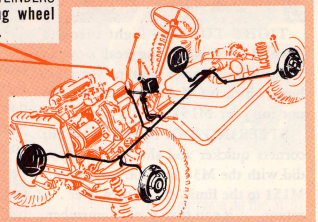
CANVAS RODS—Rusted, bent out of shape. Chains and retaining pins missing or unserviceable.

GENERAL VEHICLE APPEARANCE—Dirty, rust spots, needs paint, **welds pulled loose.**

VEHICLE

BRAKE LINES & HOSE CONNECTIONS—**Lines leaking.** Lines twisted, kinked, frayed. **Connections loose.**

BRAKE CYLINDERS—**Leaking wheel cylinders.**



REAR DIFFERENTIAL (only)—**Flange-guard washers and screws not in place.** (Early production models don't have them as issue equipment for the rear differential. If you have an early model, have the washers and screws put in so your differential gear oil doesn't leak out.)

TAILPIPE—Broken, clogged, badly dented, clamps loose, lifting shackle hits the pipe.

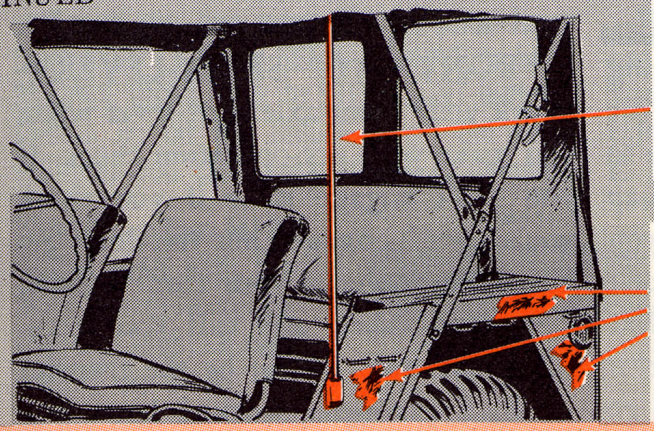
WHEEL PROPELLER-SHAFTS—**Installed wrong.** All shafts must be installed with their spline and yoke ends attached to the differential...not the wheel.

MUFFLER SYSTEM—**Holes in muffler or pipes. Lines leaking.** Clamps missing, not holding securely, **broken mounting bracket.**

FRAME & BODY—Bent or cracked, welds pulled loose. Note: Pay real good attention to muffler brackets because some of them have been breaking. Keep engine mountings secure to prevent vibration being transmitted to muffler brackets.

MORE

CONTINUED



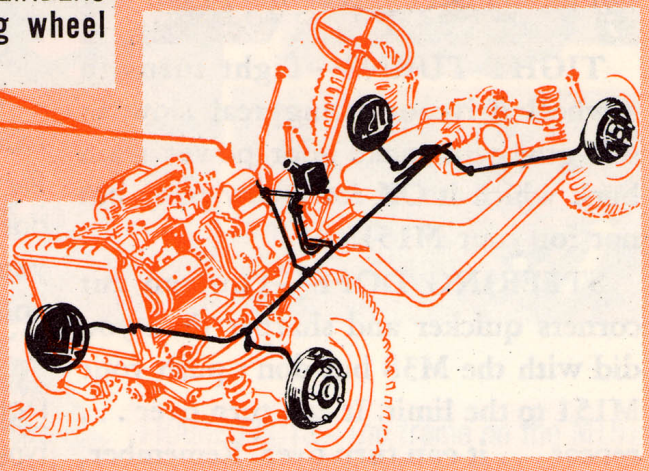
CANVAS RODS — Rusted, bent out of shape. Chains and retaining pins missing or unserviceable.

GENERAL VEHICLE APPEARANCE — Dirty, rust spots, needs paint, **welds pulled loose.**

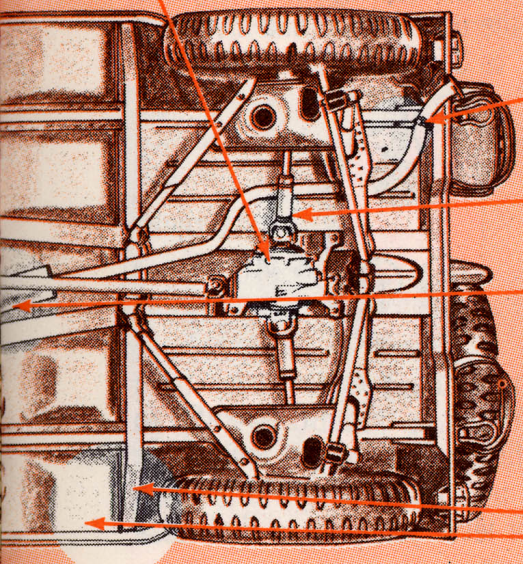
VEHICLE

BRAKE LINES & HOSE CONNECTIONS—**Lines leaking.** Lines twisted, kinked, frayed. **Connections loose.**

BRAKE CYLINDERS —**Leaking wheel cylinders.**



REAR DIFFERENTIAL (only) — **Flange-guard washers and screws not in place.** (Early production models don't have them as issue equipment for the rear differential. If you have an early model, have the washers and screws put in so your differential gear oil doesn't leak out.)



TAILPIPE — Broken, clogged, badly dented, clamps loose, lifting shackle hits the pipe.

WHEEL PROPELLER-SHAFTS — **Installed wrong.** All shafts must be installed with their spline and yoke ends attached to the differential...not the wheel.

MUFFLER SYSTEM — **Holes in muffler or pipes. Lines leaking.** Clamps missing, not holding securely, **broken mounting bracket.**

FRAME & BODY — Bent or cracked, welds pulled loose. Note: Pay real good attention to muffler brackets because some of them have been breaking. Keep engine mountings secure to prevent vibration being transmitted to muffler brackets.

P.S. MORE

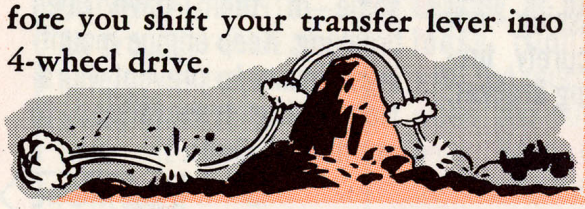
TIPS FOR THE DRIVER

CHANGING WHEELS—Changing a wheel is a tricky job. Even with the shorter lug wrench it's mighty easy to pour on too much pressure and snap off a wheel stud. That happens and you need the whole assembly, Hub Wheel: wheel spindle FSN 2530-678-1291 (8754387) and you got to order it through your support unit. Best to go slow and gentle.

TIGHT TURNS—Tight turns in 4-wheel drive or going real slow in 4th gear will make your power train buck which is OK for a cow pony but not for your M151.

STEERING DOPE—You can cut corners quicker and sharper than you did with the M38 but don't push your M151 to the limit. It can turn over . . . repeat . . . it can turn over. Remember, it's a vehicle, not a cow pony, and you're a driver—not a "cowboy."

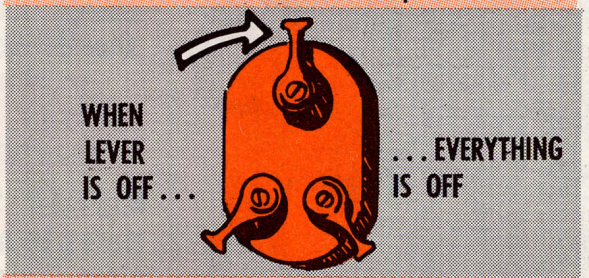
FRONT-WHEEL DRIVE—You can go into front-wheel drive and shift your transfer lever back to 2-wheel drive without throwing in your clutch, stopping your vehicle or even slowing down, provided your rear wheels have traction. But if your rear wheels get spinning (like in mud or snow) you have to take your foot off the gas before you shift your transfer lever into 4-wheel drive.



FRONT-AXLE SHIFT-LEVER—Work your front-axle shift-lever when you make your pre-operation check. If you can't engage it or if you think you've got it engaged but you don't get any drive power at your front wheels, stop right there, and call your company mechanic. Might be the transfer declutch pivot-pin worked loose and backed out of position. When this happens you can lose all the oil out of your transmission.

STOP—That's what you have to do . . . STOP completely before you shift from forward to reverse or reverse to forward. You already know this but don't forget it when you are "rocking" yourself out of a snow drift or a mudhole.

LIGHT SWITCH—The M151 has a military-type light-switch. When the selector lever is in OFF position, everything is off and your stop lights won't show when you hit your brakes. If you want stop lights for daytime driving, raise the unlock lever and move the selector lever to STOP LIGHT position.



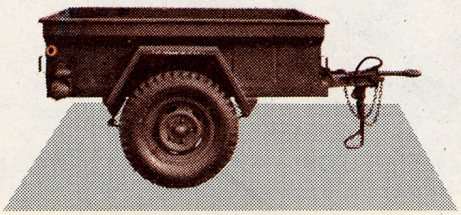
You can move the selector lever from OFF to BO MARKER or from BO MARKER to OFF without first raising up on the unlock lever. But for any other change in position of the selector lever you have to first raise the unlock lever.

There is one exception to this—on some switches you can move the selector lever from STOP LIGHT to SERVICE DRIVE or from SERVICE DRIVE back to STOP LIGHT without raising up on the unlock lever. On other switches you can't make these movements without using the unlock lever.

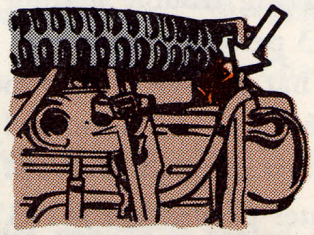
Both types of switches are OK. But if you can move your selector lever without first moving the unlock lever in any way not provided for above, your switch is bad and needs to be replaced.

TRAILER — The M100 trailer used with the M38's won't track with the M151. A new trailer, the M416, will do the job.

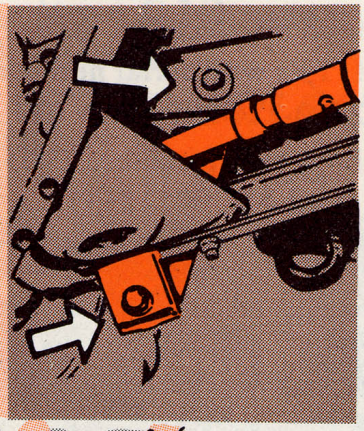
M416



TIRE CHAINS—You'll chew up the electrical wires to your tail lights every time you run with tire chains on unless you keep the chains snug.

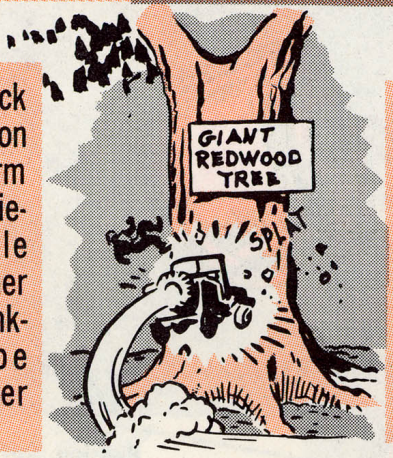


SHOCK ABSORBERS (rear only) — Get in the habit of checking the upper and lower mounting-bolts and nuts of your rear shock-absorbers every day. If they're loose tell your company mechanic because if they break, the spring-seat-arm assembly will drop and your coil springs can fall out.

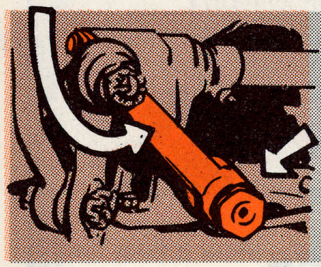


ADJUSTING SLEEVE — Locknuts not secure on adjusting-sleeve clamp bolts.

PITMAN ARM—Check nut and cotter pin on pitman arm, idler-arm rod, spindle-arm tie-rod, wheel-spindle support and all other parts of steering linkage that can be reached from under the vehicle.



FRAME FACTS—The frame on the M151 is rugged enough for ordinary use, but, let's face it, the M151 will never replace the tank-mounted bulldozer. So don't be using it to knock over trees and such. You can bend the frame plenty easy by using the M151 for pushing and towing jobs beyond its capacity.

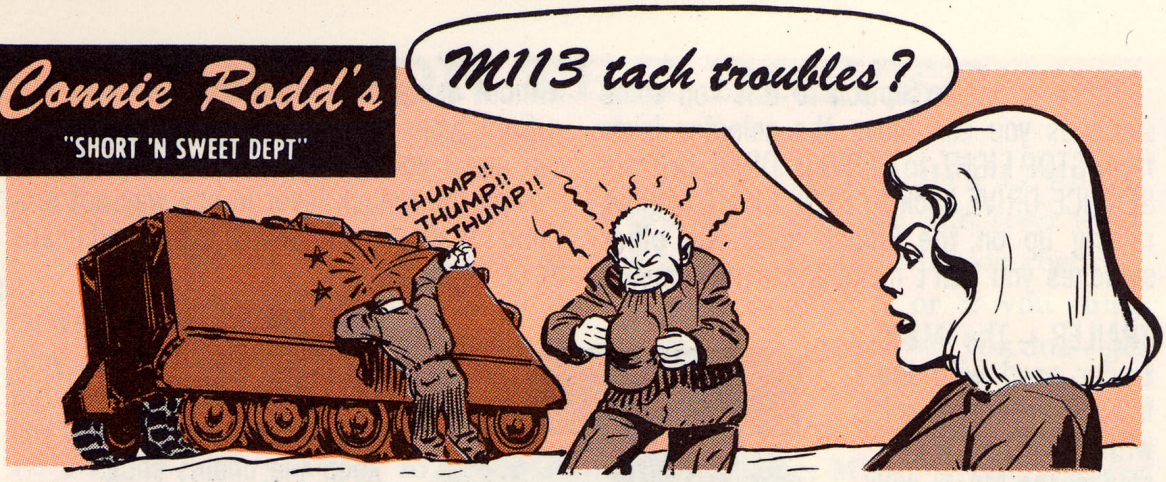


SECTOR-SHAFT NUT—Check sector-shaft nut for looseness. If it's loose, tell your company mechanic.

GAS GAGE — This shows the amount you've actually got in your tank, not the amount you can still use. That means you'll be out of gas before the needle touches E for EMPTY. Be sure every driver knows about this.

PS END

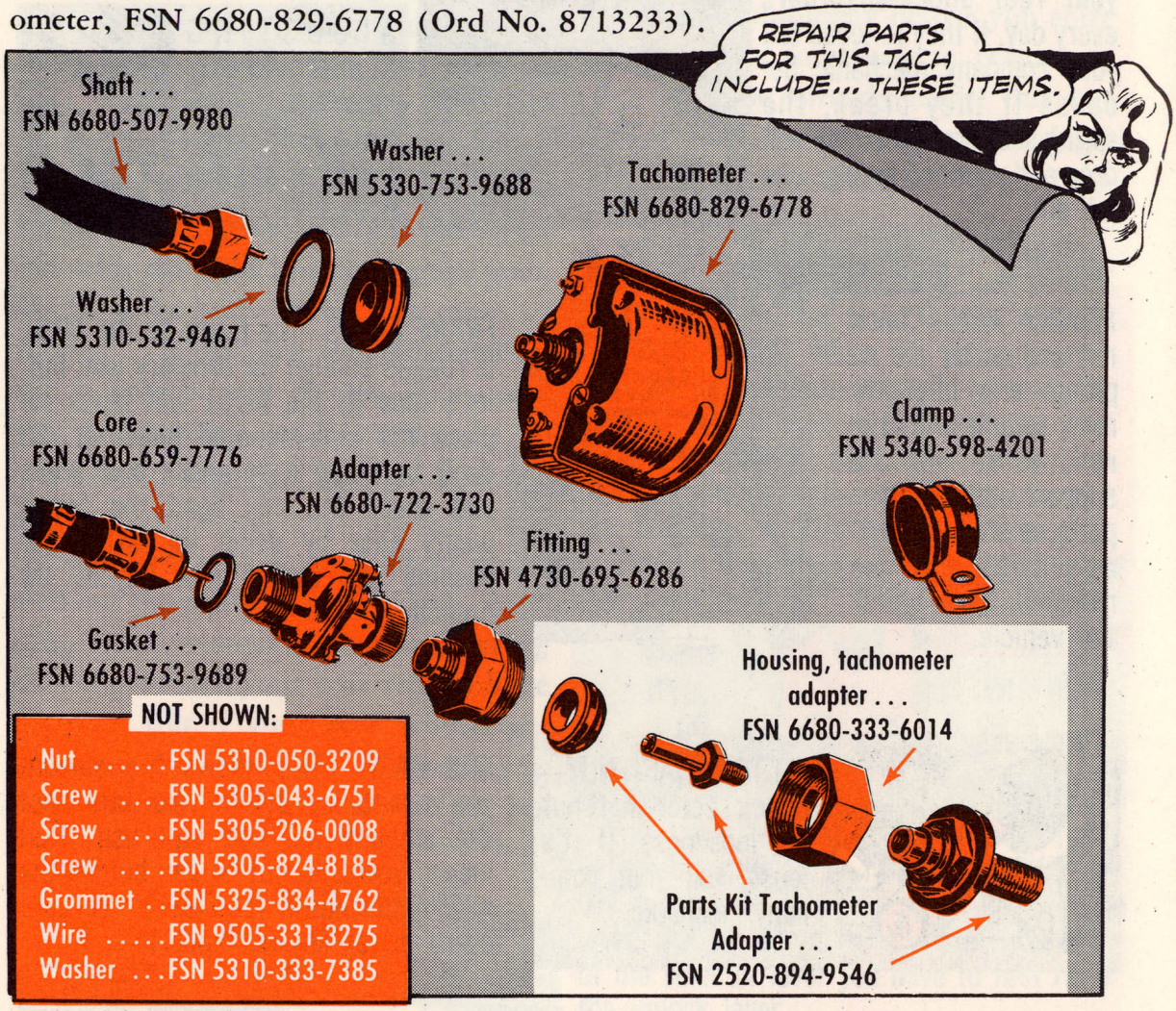
Connie Rodd's
"SHORT 'N SWEET DEPT"



Having trouble getting repair parts for the mechanical tachometer on your M113 personnel carrier?

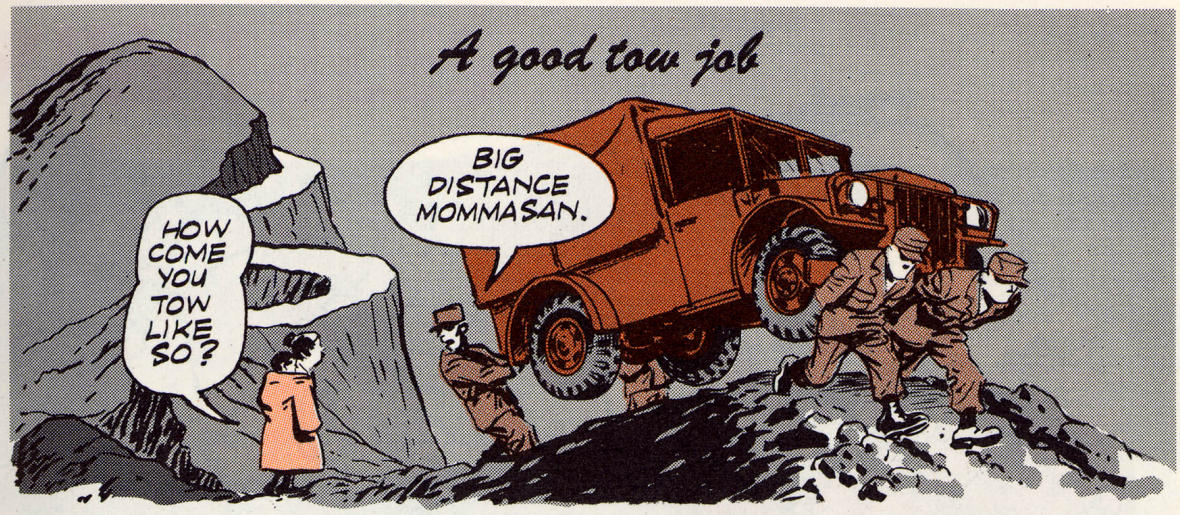
What hoppen is that they used an electrical tach, FSN 6680-679-9299 (Ord No. 8763345), on the early M113's with serial numbers F4 thru F903, and that's the tach listed in your TM 9-2300-224-20P (Nov 61).

Later production M113's above serial number F903 have the mechanical tachometer, FSN 6680-829-6778 (Ord No. 8713233).



NOT SHOWN:

Nut	FSN 5310-050-3209
Screw	FSN 5305-043-6751
Screw	FSN 5305-206-0008
Screw	FSN 5305-824-8185
Grommet	FSN 5325-834-4762
Wire	FSN 9505-331-3275
Washer	FSN 5310-333-7385

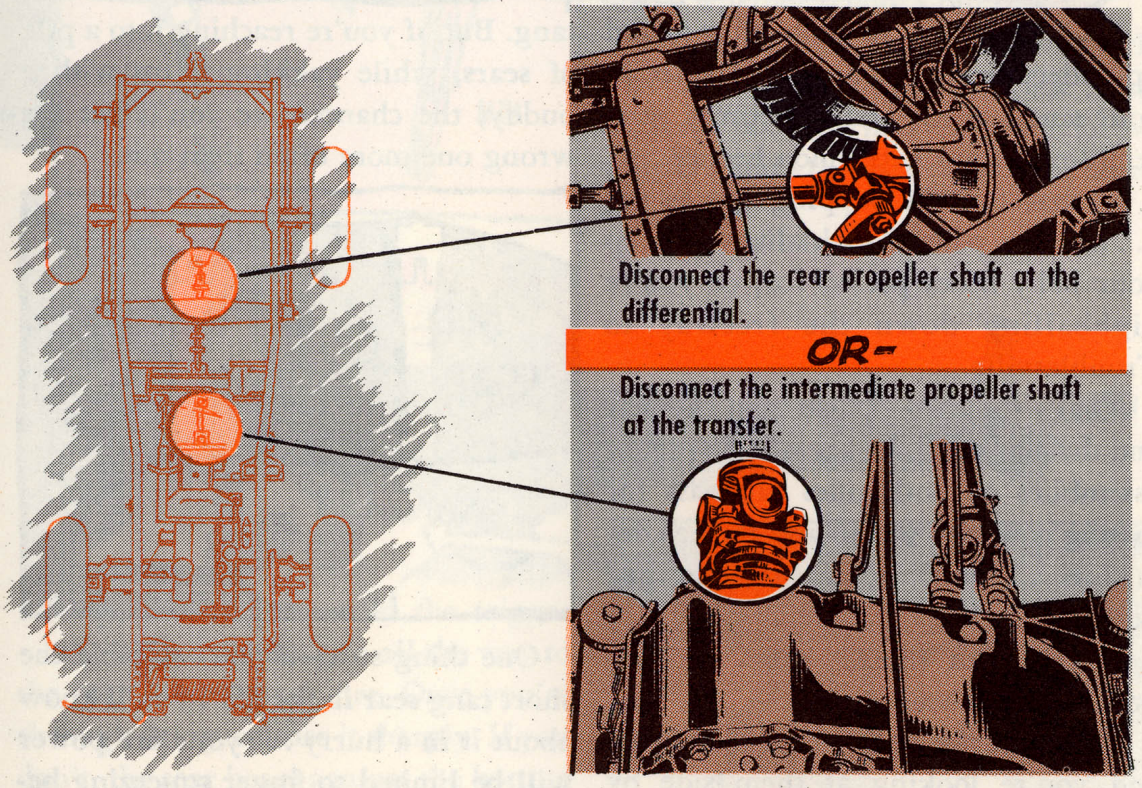


To do a good tow job on a ¾-ton G-741 series truck, you must go by Change 5 (June 60) to TM 9-8030 (May 55).

Change 5 pinpoints the chores that you've got to do to keep from causing transmission synchronizer failures.

When a ¾-ton M37 or M37B1 or any G-741 series vehicle is towed, the transmission main shaft turns but doesn't get much lube. This is not too bad and will cause no harm if your tow job is under five miles. But when you tow beyond five miles, the lack of lube is murder on the transmission synchronizer.

So, if a tow job is more than five miles do either of these two:



And make sure you tie the disconnected prop shaft tight to the frame so it won't fall loose while towing.

TWIN

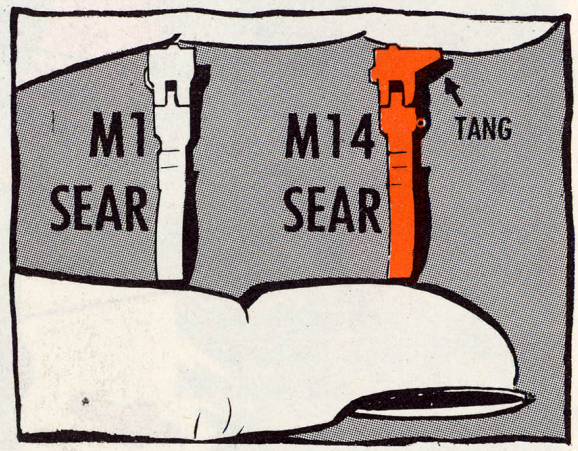
Like maybe you've got a crazy mixed up collection of M1 and M14 rifles in your small arms—and sometimes reassembling things gets kinda hectic?

If that eyelash flapping means yes . . . here's a pair of look-alikes to keep your baby blues peeled for, or you're highballing down the freeway to Troublesville.

That's for true—'cause both the sear and the rear sight elevation knob pinion assemblies on both rifles can pass for kissing cousins. And to add to the confusion . . . they can be interchanged with each other.

Can be, but shouldn't be. On purpose, or by mistake.

When they're both out in the open—and you're looking at them side by side—it's a cinch to spot the fact that the one for the M14 rifle has a larger tang. But, if you're reaching into a pile of sears, while yakking it up with a buddy, the chances are you'll get the wrong one more often than not.



One thing sure—if you assemble the short tang sear in the M14 you'll know about it in a hurry . . . your fire power will be limited to finger squeezing because you can't get automatic fire with this sear.

TWIN TROUBLES

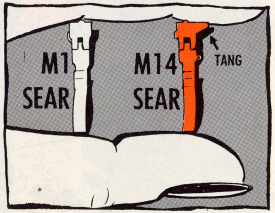
Like maybe you've got a crazy mixed up collection of M1 and M14 rifles in your small arms—and sometimes reassembling things gets kinda hectic?

If that eyelash flapping means yes . . . here's a pair of look-alikes to keep your baby blues peeled for, or you're highballing down the freeway to Troublesville.

That's for true—'cause both the sear and the rear sight elevation knob pinion assemblies on both rifles can pass for kissing cousins. And to add to the confusion . . . they can be interchanged with each other.

Can be, but shouldn't be. On purpose, or by mistake.

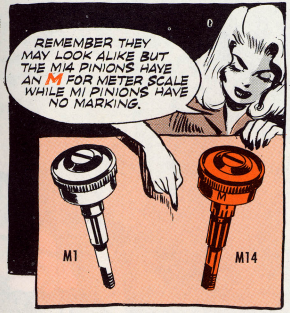
When they're both out in the open—and you're looking at them side by side—it's a cinch to spot the fact that the one for the M14 rifle has a larger tang. But, if you're reaching into a pile of sears, while yakking it up with a buddy, the chances are you'll get the wrong one more often than not.



One thing sure—if you assemble the short tang sear in the M14 you'll know about it in a hurry . . . your fire power will be limited to finger squeezing because you can't get automatic fire with this sear.

And now, the elevation pinion situation.

Again, if you take a real close look,



you can easily spot the difference—but this poop is for guys who take a long-range gander at things.

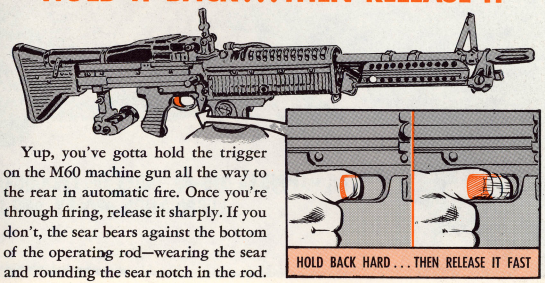
To begin with, the M1 knob is marked off in yards—up to 1200 of them—while the M14 knob is graduated in meters and goes up to 1100.

The second tipoff is the "M" for meters that's stamped into the knob assembly of the newer 7.62 mm M14 rifle.

Mixing the knobs may not be the worst thing you can do . . . but it'll sure make things rugged when your outfit's shooting for record or if you ever get in a situation where one potshot determines whether school's out or not.

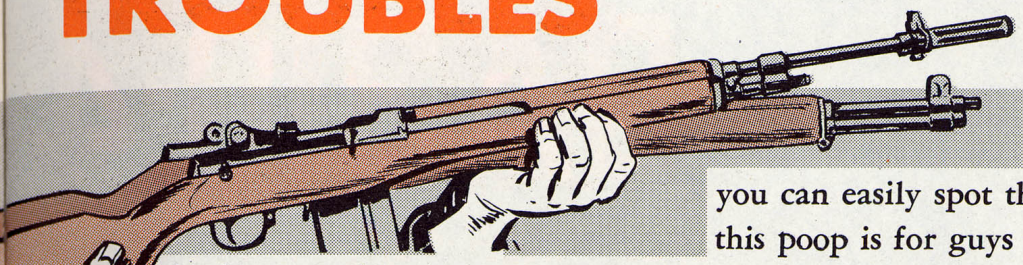
OK, now that you're a pro, check that rifle the next time you pick it up from the pool and make sure you know your P's and Q's—as well as your sears and knobs.

HOLD IT BACK . . . THEN RELEASE IT



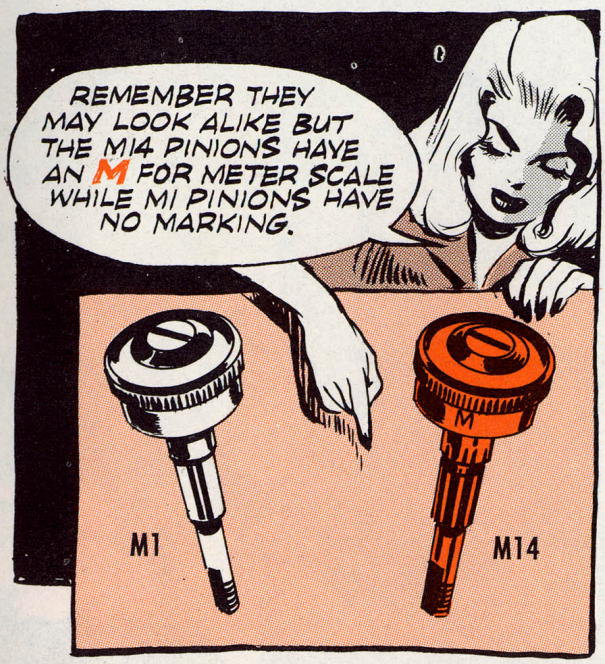
Yup, you've gotta hold the trigger on the M60 machine gun all the way to the rear in automatic fire. Once you're through firing, release it sharply. If you don't, the sear bears against the bottom of the operating rod—wearing the sear and rounding the sear notch in the rod.

TROUBLES



And now, the elevation pinion situation.

Again, if you take a real close look, you can easily spot the difference—but this poop is for guys who take a long-range gander at things.



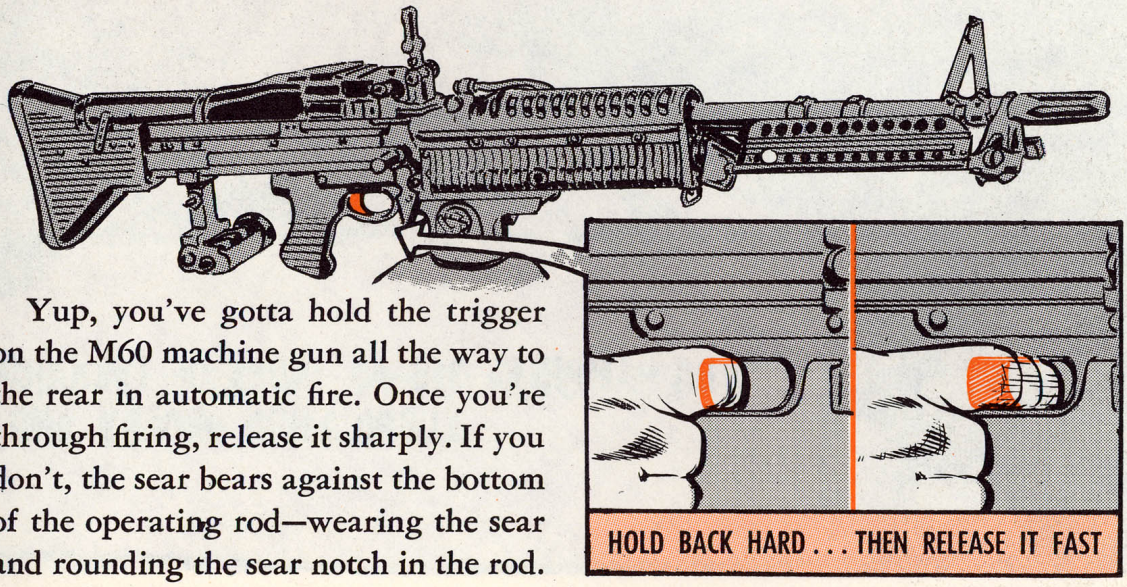
To begin with, the M1 knob is marked off in yards—up to 1200 of them—while the M14 knob is graduated in meters and goes up to 1100.

The second tipoff is the "M" for meters that's stamped into the knob assembly of the newer 7.62 mm M14 rifle.

Mixing the knobs may not be the worst thing you can do . . . but it'll sure make things rugged when your outfit's shooting for record or if you ever get in a situation where one potshot determines whether school's out or not.

OK, now that you're a pro, check that rifle the next time you pick it up from the pool and make sure you know your P's and Q's—as well as your sears and knobs.

HOLD IT BACK . . . THEN RELEASE IT



Yup, you've gotta hold the trigger on the M60 machine gun all the way to the rear in automatic fire. Once you're through firing, release it sharply. If you don't, the sear bears against the bottom of the operating rod—wearing the sear and rounding the sear notch in the rod.

DA 310-4

Dig, Dig, Dig.

That's the secret word—if you're gonna get the most out of Department of the Army Pamphlet, 310-4.

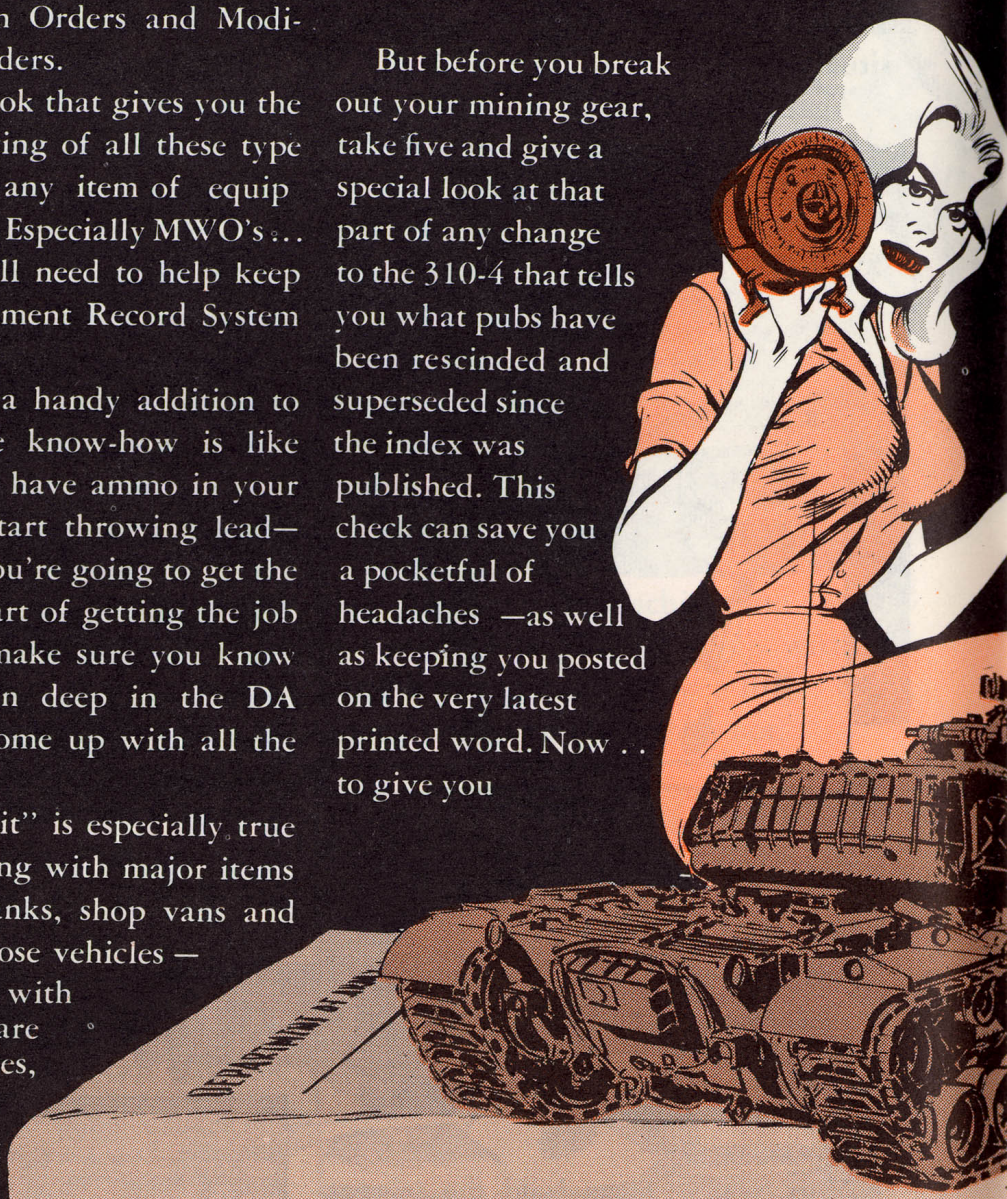
The DA Pam 310-4—as it's better known—is the index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders and Modification Work Orders.

And, it's the book that gives you the latest, current listing of all these type publications for any item of equipment in the Army. Especially MWO's... MWO's that you'll need to help keep your Army Equipment Record System up to date.

And calling it a handy addition to your maintenance know-how is like saying it's nice to have ammo in your rifle before you start throwing lead—both are vital if you're going to get the job done right. Part of getting the job done right is to make sure you know how to dig down deep in the DA Pam 310-4 and come up with all the answers.

This "diggin' bit" is especially true when you're dealing with major items of equipment — tanks, shop vans and other special purpose vehicles — which are loaded with components that are items in themselves, even tho they're all covered briefly in the main pub of the major item.

But before you break out your mining gear, take five and give a special look at that part of any change to the 310-4 that tells you what pubs have been rescinded and superseded since the index was published. This check can save you a pocketful of headaches —as well as keeping you posted on the very latest printed word. Now . . to give you



DA PAMPHLET 310–4—INDEX OF TECHNICAL MANU
LUBRICATION ORDERS, AND MODIFIC

DA 310-4 Primer

Dig, Dig, Dig.

That's the secret word—if you're gonna get the most out of Department of the Army Pamphlet, 310-4.

The DA Pam 310-4—as it's better known—is the index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders and Modification Work Orders.

And, it's the book that gives you the latest, current listing of all these type publications for any item of equipment in the Army. Especially MWO's . . . MWO's that you'll need to help keep your Army Equipment Record System up to date.

And calling it a handy addition to your maintenance know-how is like saying it's nice to have ammo in your rifle before you start throwing lead—both are vital if you're going to get the job done right. Part of getting the job done right is to make sure you know how to dig down deep in the DA Pam 310-4 and come up with all the answers.

This "diggin' bit" is especially true when you're dealing with major items of equipment — tanks, shop vans and other special purpose vehicles — which are loaded with components that are items in themselves, even tho they're all covered briefly in the main pub of the major item.

But before you break out your mining gear, take five and give a special look at that part of any change to the 310-4 that tells you what pubs have been rescinded and superseded since the index was published. This check can save you a pocketful of headaches —as well as keeping you posted on the very latest printed word. Now . . . to give you some on the job training with the DA Pam 310-4 . . . let's go on a digging expedition with one major item . . . let's do it with the M48A1 90-mm tank.

To get things started, reach for that dog-eared 310-4 and run your GAA'd forefinger down the alphabetical index until you get to "Tanks, Combat (full-tracked)". Then close in on the target by moving down the 90-mm breakdown until you come to the M48A1 series. Listed opposite the M48A1 are the major pubs that will give you the big picture for the tank. In this case the pub list includes MWO's, TB's, an SB-11 and the all-important Technical Manual 9-7012—the basic TM for the M48A1 tank.

Unfortunately, here's where a lot of guys stop—and figure they've got it made.

They think they've dug pretty deep and now have a complete list of all the pubs they need to maintain a top notch maintenance program on the M48A1.

Give 'em an E for effort . . . they've got the big scene covered but a little more scratching would bring a lot more important information on the major components out into the open.

These major components of the M48A1—like many other components on other pieces of equipment—have important pubs of their own that can add to your know-how. The major components are all found in the description and tabulated data section of the basic TM—in this case, TM 9-7012.

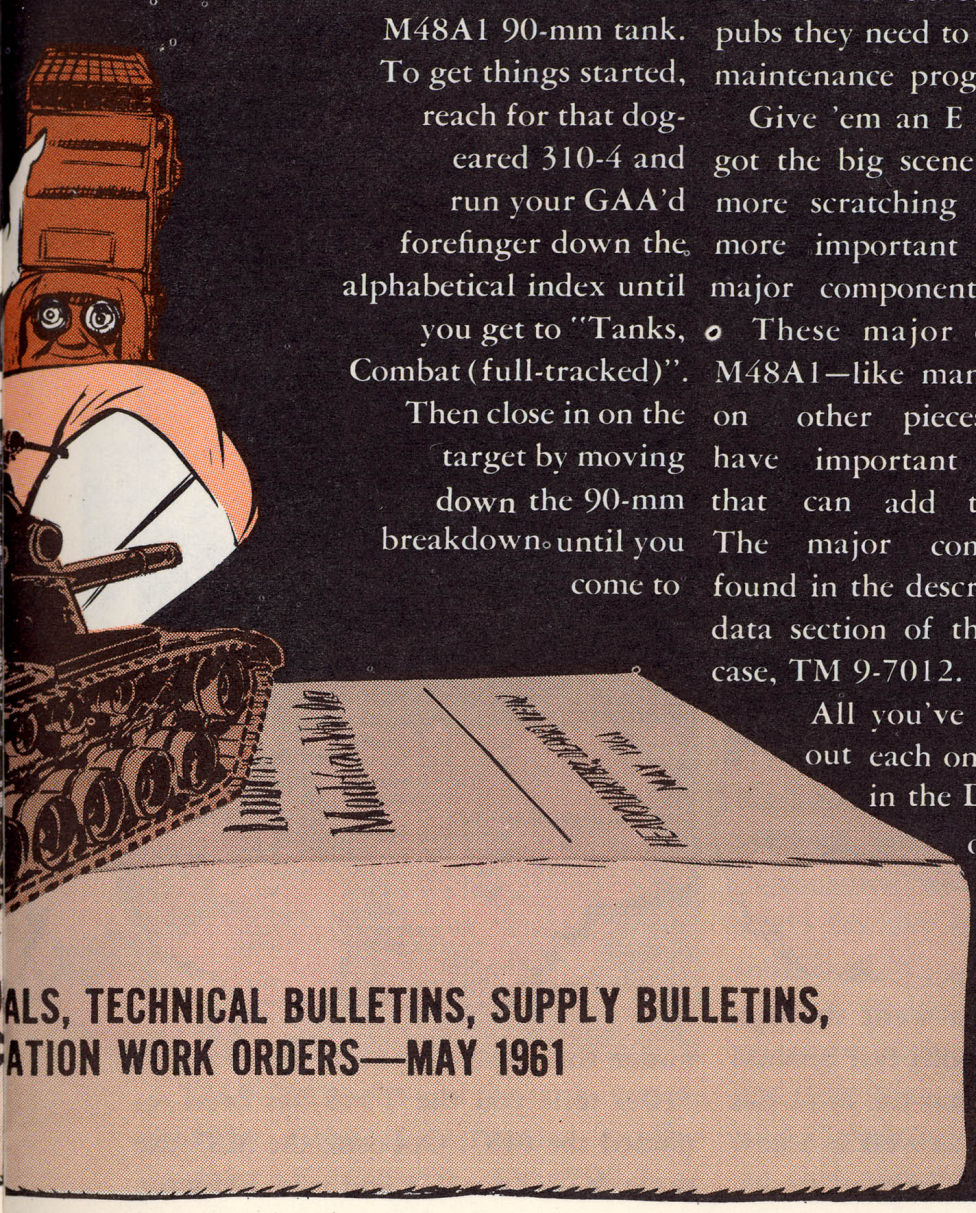
All you've gotta do is to check out each one under its own title in the DA 310-4 and you're on the way to getting all the pubs that are needed to keep your maintenance education in high gear.

DA PAMPHLET 310-4—INDEX OF TECHNICAL MANUALS, TECHNICAL BULLETINS, SUPPLY BULLETINS, LUBRICATION ORDERS, AND MODIFICATION WORK ORDERS—MAY 1961

MORE

Primer

some on the job training with the DA Pam 310-4 . . . let's go on a digging expedition with one major item . . . let's do it with the M48A1 90-mm tank. To get things started, reach for that dog-eared 310-4 and run your GAA'd forefinger down the alphabetical index until you get to "Tanks, Combat (full-tracked)". Then close in on the target by moving down the 90-mm breakdown until you come to



ALS, TECHNICAL BULLETINS, SUPPLY BULLETINS,
ATION WORK ORDERS—MAY 1961

the M48A1 series. Listed opposite the M48A1 are the major pubs that will give you the big picture for the tank. In this case the pub list includes MWO's, TB's, an SB-11 and the all-important Technical Manual 9-7012—the basic TM for the M48A1 tank.

Unfortunately, here's where a lot of guys stop—and figure they've got it made.

They think they've dug pretty deep and now have a complete list of all the pubs they need to maintain a top notch maintenance program on the M48A1.

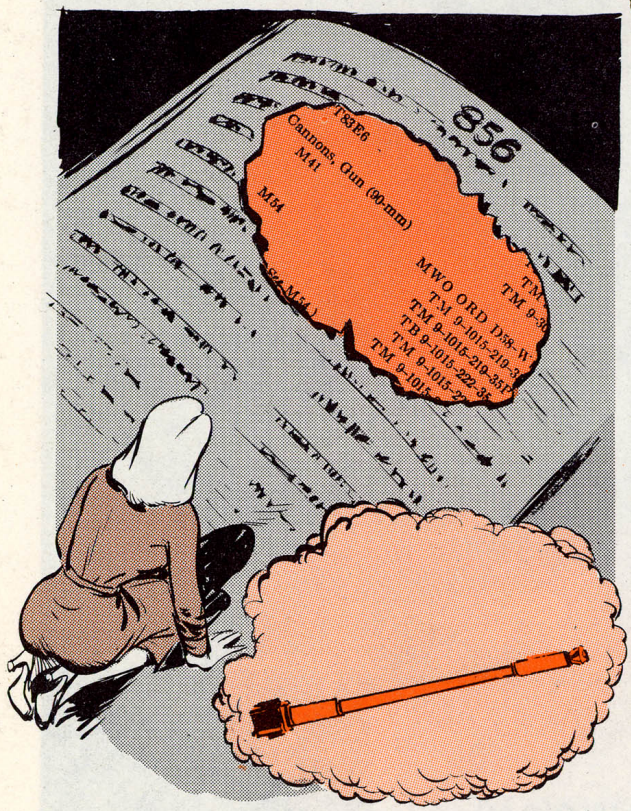
Give 'em an E for effort . . . they've got the big scene covered but a little more scratching would bring a lot more important information on the major components out into the open.

These major components of the M48A1—like many other components on other pieces of equipment—have important pubs of their own that can add to your know-how. The major components are all found in the description and tabulated data section of the basic TM—in this case, TM 9-7012.

All you've gotta do is to check out each one under its own title in the DA 310-4 and you're on the way to getting all the pubs that are needed to keep your maintenance education in high gear.

P.S. MORE

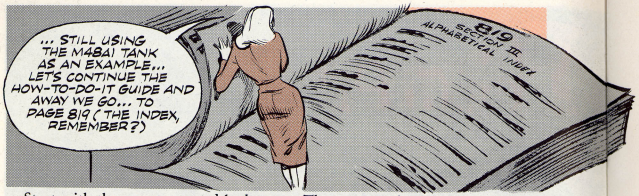
Start with the armament and look at the M41 90-mm gun. This one's a little tricky. It's indexed under "Cannon, gun, M41" and not under "Gun, 90-mm" like you might expect. But it serves to underline the fact that if you want to get all the info in the DA 310-4, you really have to dig for it.



The extra work you went through starts paying off dividends fast because the DA 310-4 shows that the M41 has an MWO applied to it as well as a new TM that's sure to prove helpful.

The next major component of the armament is the T148 combination gun mount. Going by the major noun in the title, this time your digging will lead you to "mounts, gun (combination)"

under this heading you'll see that DA 310-4 tells you the T148 has been renamed the M87. Opposite the M87 are some MWO's, a TB and two TM's.

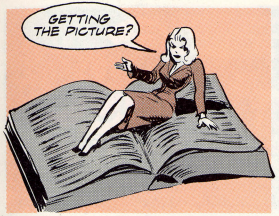


Start with the armament and look at the M41 90-mm gun. This one's a little tricky. It's indexed under "Cannon, gun, M41" and not under "Gun, 90-mm" like you might expect. But it serves to underline the fact that if you want to get all the info in the DA 310-4, you really have to dig for it.

The extra work you went through starts paying off dividends fast because the DA 310-4 shows that the M41 has an MWO applied to it as well as a new TM that's sure to prove helpful.

The next major component of the armament is the T148 combination gun mount. Going by the major noun in the title, this time your digging will lead you to "mounts, gun (combination)"

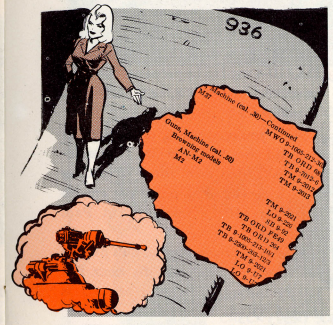
under this heading you'll see that DA 310-4 tells you the T148 has been renamed the M87. Opposite the M87 are some MWO's, a TB and two TM's.



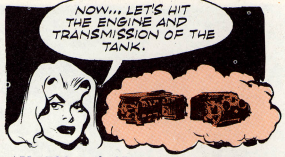
OK, go for broke—track down the .50-cal. M2 HB machine gun. If you found it under "Guns, machine (Cal. .50)" you came up with a list of pubs that includes a TM, LO, SB and four TB's.

Continue this do-it-yourself idea and see what pubs are listed for the rest of the armament listed for the M48A1 in TM 9-7012.

Now, let's hit the engine and transmission of the tank.



TM 9-7012 tells you the tank is powered by either Continental engine models AV-1790-5B, AV-1790-7 or



AV-1790 and AV-1790-7C. Checking the 310-4 under "Engines, gasoline", you'll discover that a pair of TB's and a TM are listed.

A quick look at the transmission data plate on the tank or the TM 9-7012 clues you that the transmission is either an Allison-GMC CD-850-4, CD-850-4A or CD-850-4B. The DA 310-4 comes up with an MWO and a TB-9 for CD-850-4B.

The M48A1 — like most tanks — is loaded with sighting and fire control instruments. All of which play a key role in getting that first shot on target.

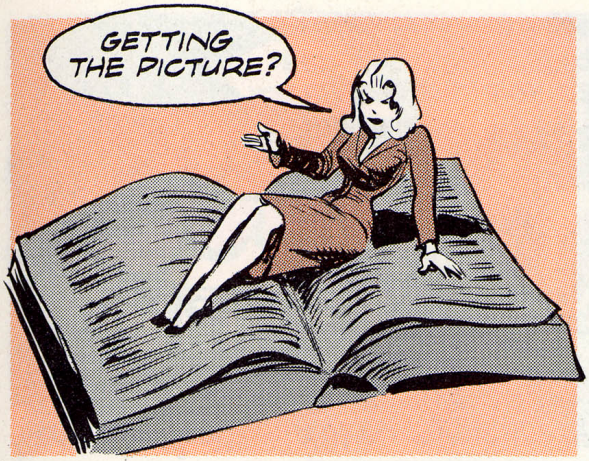
So it figures that the more a guy knows about these instruments — the better his chances are to hit the bulls eye. Right?

And — like maybe you've noticed — the DA 310-4 is the key to gaining that all-important know-how via the pub route.

Topping the list of sighting and firing controls in TM 9-7012 is the T28 azimuth indicator. DA 310-4, under "indicators, azimuth" shows you the scoop for this indexed under the M28 indicator.

Four periscopes, a range finder, a telescope sight, a gunner's quadrant and a ballistic computer also are listed under their own headings. Dig these on your own for practice.

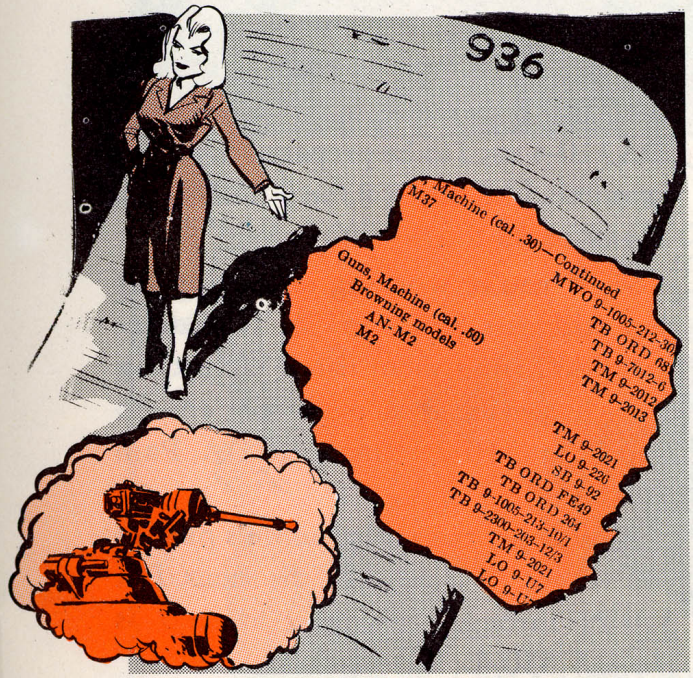
TURN PAGE MORE



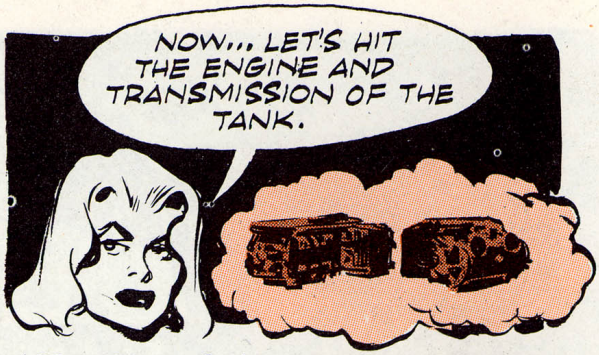
OK, go for broke—track down the .50-cal. M2 HB machine gun. If you found it under "Guns, machine (Cal. .50)" you came up with a list of pubs that includes a TM, LO, SB and four TB's.

Continue this do-it-yourself idea and see what pubs are listed for the rest of the armament listed for the M48A1 in TM 9-7012.

Now, let's hit the engine and transmission of the tank.



TM 9-7012 tells you the tank is powered by either Continental engine models AV-1790-5B, AV-1790-7 or



AV-1790 and AV-1790-7C. Checking the 310-4 under "Engines, gasoline", you'll discover that a pair of TB's and a TM are listed.

A quick look at the transmission data plate on the tank or the TM 9-7012 clues you that the transmission is either an Allison-GMC CD-850-4, CD-850-4A or CD-850-4B. The DA 310-4 comes up with an MWO and a TB-9 for CD-850-4B.

The M48A1 — like most tanks — is loaded with sighting and fire control instruments. All of which play a key role in getting that first shot on target.

So it figures that the more a guy knows about these instruments — the better his chances are to hit the bulls eye. Right?

And — like maybe you've noticed — the DA 310-4 is the key to gaining that all-important know-how via the pub route.

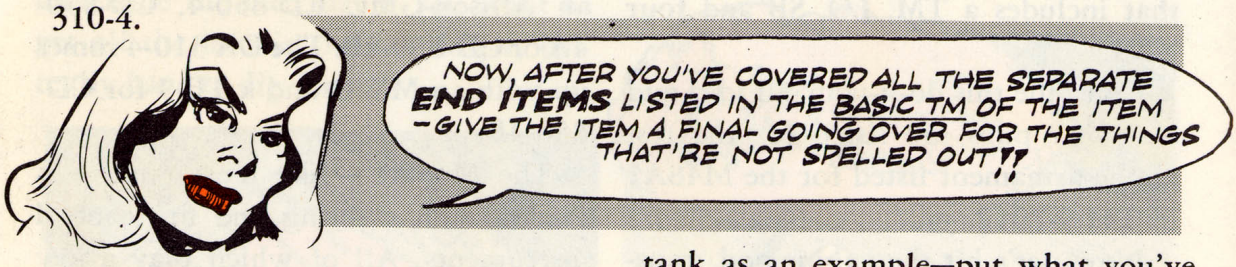
Topping the list of sighting and firing controls in TM 9-7012 is the T28 azimuth indicator. DA 310-4, under "indicators, azimuth" shows you the scoop for this indexed under the M28 indicator.

Four periscopes, a range finder, a telescope sight, a gunner's quadrant and a ballistic computer also are listed under their own headings. Dig these on your own for practice.

PS MORE

Radio and interphone communications for the M48A1 are provided by combinations of AN/GRC-3, 4, 7 or 8 or AN/VRC-7; AN/ARC-3 or AN/ARC-27 with the AN/VIA-1.

Information on the auxiliary interphone equipment is found under exactly that title while the radios are covered under "Radio sets" in the DA 310-4.



Like f'rinstance, one obvious one comes to mind—tracks. All tanks have tracks. That figures. So might be there's a pub dealing with tank tracks that might come in handy.

Good old DA 310-4 won't let you down.

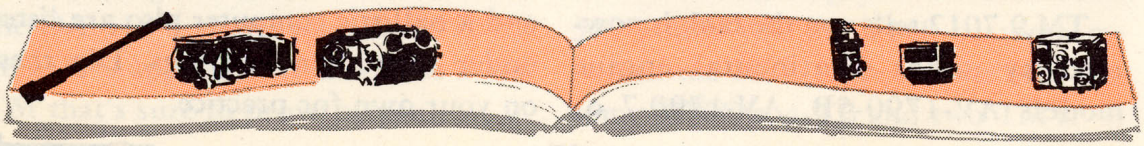
Listed under "Tracks, Components, Rubber" is TM 9-2630-200-14. A pub every tank outfit ought to have handy. It's jaw-busting title is "Identification, Inspection Classification Maintenance and Disposition of Solid Rubber Tires and Rubber Track Components" and is worth its weight in uranium.

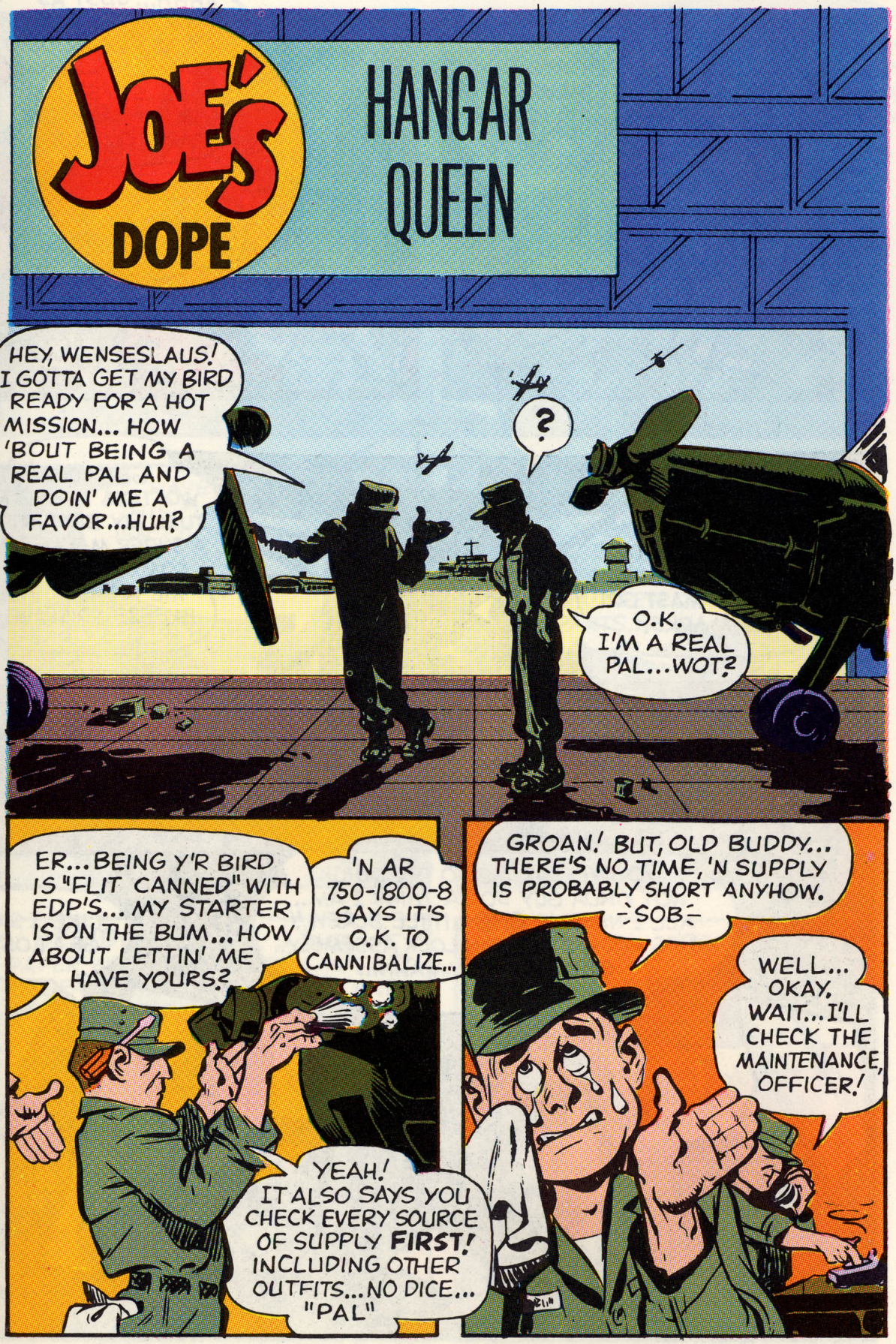
Now that you've proved you really "dig" that DA 310-4 with the M48A1 tank as an example—put what you've learned to good use by checking out the major items in your outfit.

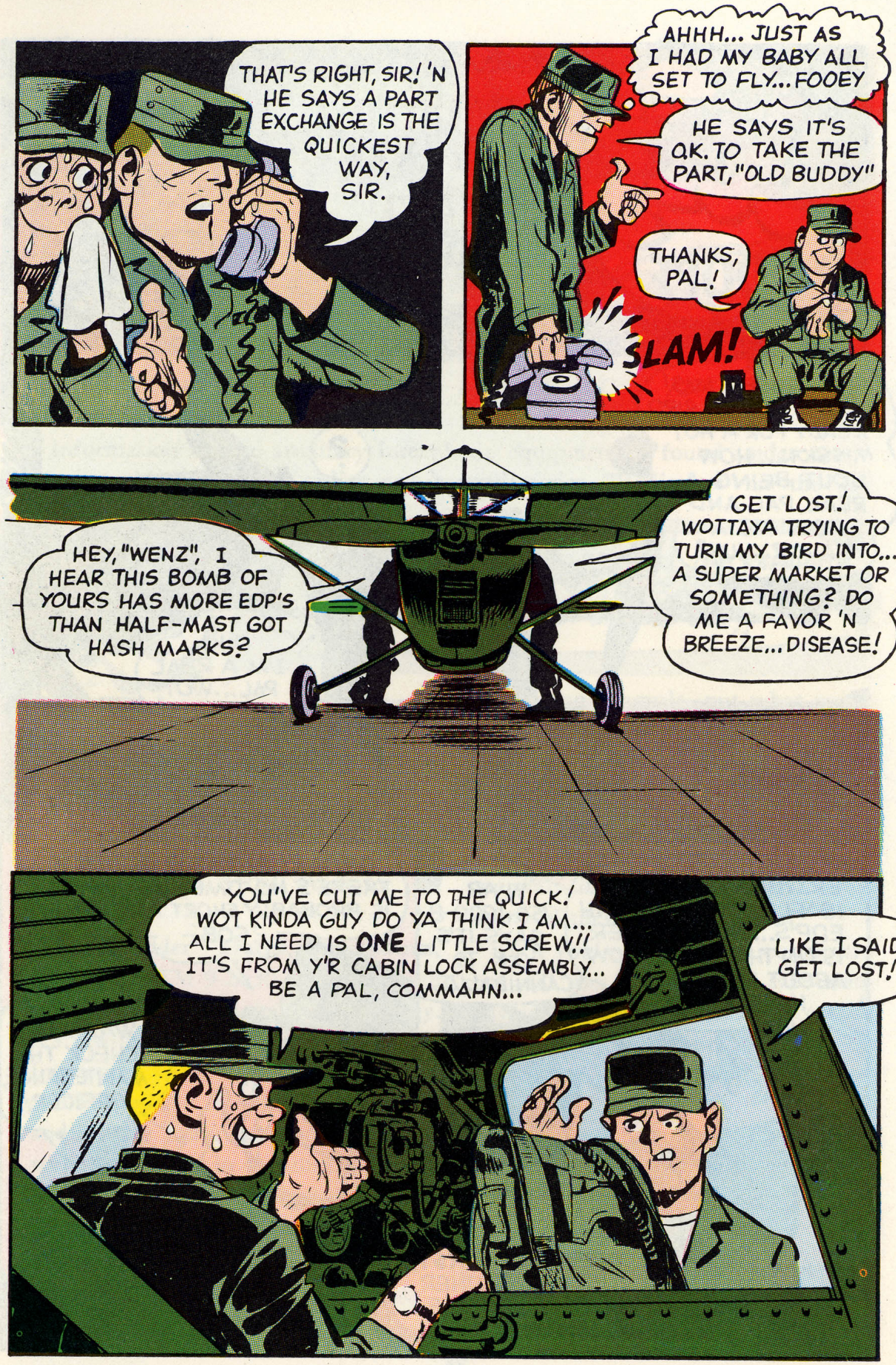
One final thing to keep in mind is that the present -P manuals listed in DA310-4 used to be prepared as supply manuals like the 7, 8, or 9 SNL's—and many of these are still current.

So, if you're working on equipment that still uses SNL's or SM type manuals you'll find them listed—according to tech service that prepared 'em—in DA Pam 310-21 through DA Pam 310-30.

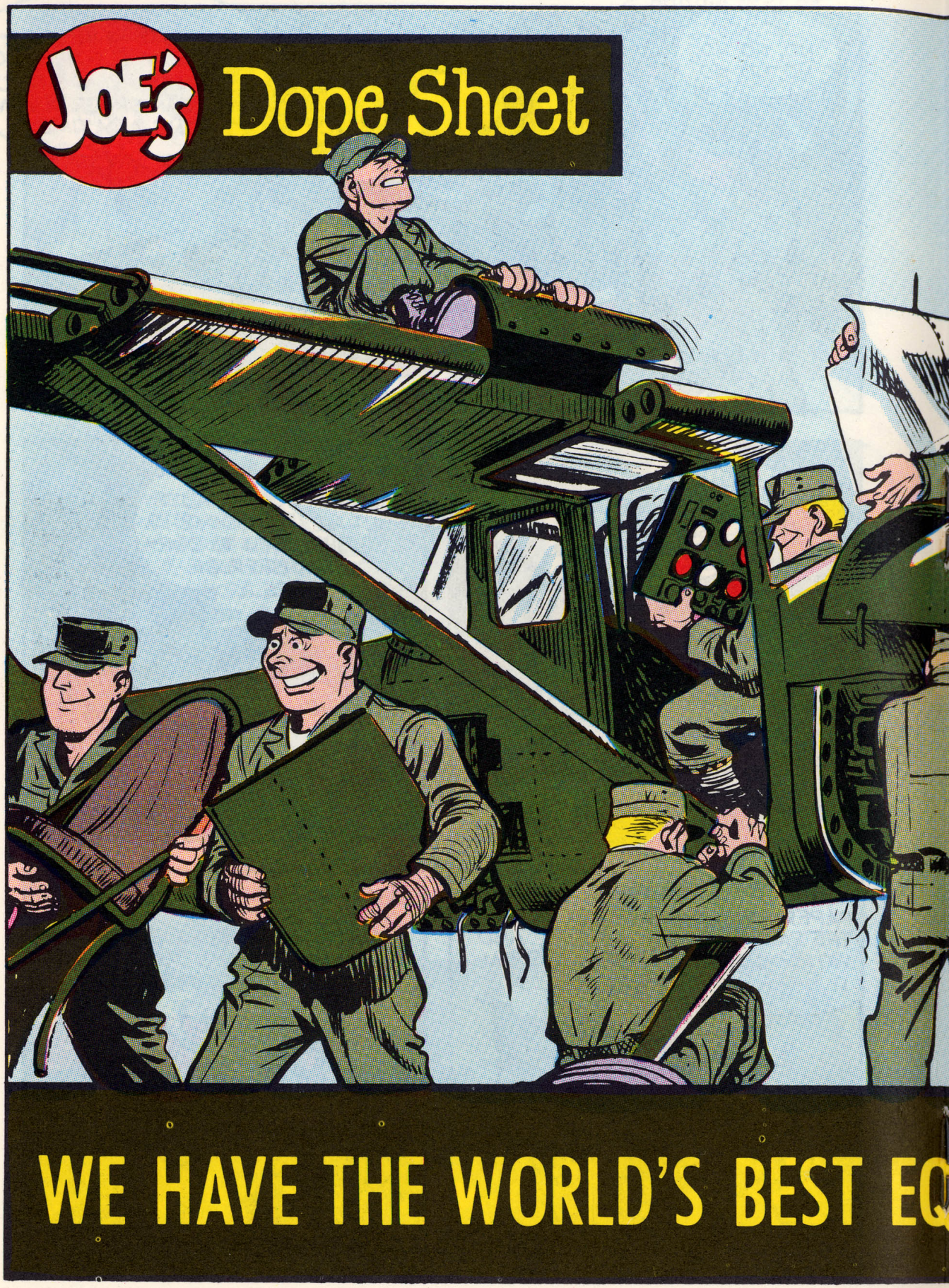
And to get the complete pub picture you've got to check out the exact DA 310-21 through -30 index as well as the DA 310-4.




JOE'S DOPE
HANGAR QUEEN
HEY, WENSESLAUS! I GOTTA GET MY BIRD READY FOR A HOT MISSION... HOW 'BOUT BEING A REAL PAL AND DOIN' ME A FAVOR...HUH?
?
O.K. I'M A REAL PAL...WOT?
ER...BEING Y'R BIRD IS "FLIT CANNED" WITH EDP'S... MY STARTER IS ON THE BUM... HOW ABOUT LETTIN' ME HAVE YOURS?
'N AR 750-1800-8 SAYS IT'S O.K. TO CANNIBALIZE...
YEAH! IT ALSO SAYS YOU CHECK EVERY SOURCE OF SUPPLY FIRST! INCLUDING OTHER OUTFITS...NO DICE... "PAL"
GROAN! BUT, OLD BUDDY... THERE'S NO TIME, 'N SUPPLY IS PROBABLY SHORT ANYHOW. SOB
WELL... OKAY, WAIT...I'LL CHECK THE MAINTENANCE OFFICER!


THAT'S RIGHT, SIR! 'N HE SAYS A PART EXCHANGE IS THE QUICKEST WAY, SIR.
AHHH... JUST AS I HAD MY BABY ALL SET TO FLY... FOOEY
HE SAYS IT'S O.K. TO TAKE THE PART, "OLD BUDDY"
THANKS, PAL.
SLAM!
HEY, "WENZ", I HEAR THIS BOMB OF YOURS HAS MORE EDP'S THAN HALF-MAST GOT HASH MARKS?
GET LOST! WOTTAYA TRYING TO TURN MY BIRD INTO... A SUPER MARKET OR SOMETHING? DO ME A FAVOR 'N BREEZE... DISEASE!
YOU'VE CUT ME TO THE QUICK! WOT KINDA GUY DO YA THINK I AM... ALL I NEED IS ONE LITTLE SCREW!! IT'S FROM Y'R CABIN LOCK ASSEMBLY... BE A PAL, COMMAHN...
LIKE I SAID, GET LOST!

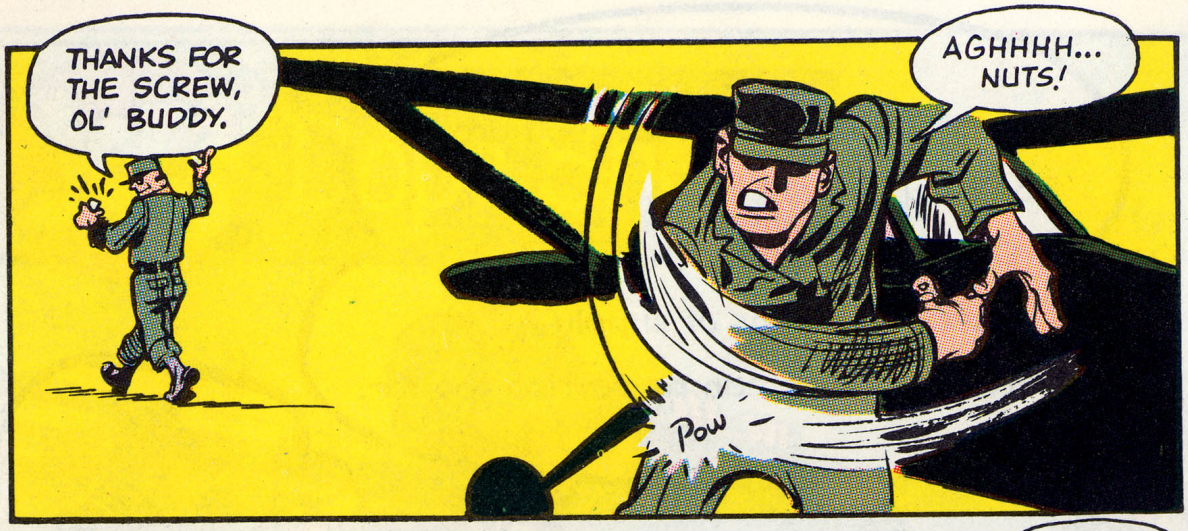
NO, NO, NO, NO, NO, NO!
BE REASONABLE... NO SENSE IN ME DRAWING THE WHOLE NEW LOCK ASSEMBLY FROM SUPPLY. YOU CAN ORDER A NEW ONE ANY TIME!
HAVE A HEART! THIS "LOAD" OF YOURS ISN'T GOING ANYWHERE. SO WOT'S THE DIFFERENCE?
LOTS... IT MAY BE O.K. TO CANNIBALIZE ...BUT AR 750-1500-8 IS ALSO SUPPOSED TO CONTROL TRANSFER OF PARTS...
NO, NO, NO!
...BESIDES! WHERE'S THE PAPER WORK SHOWIN' YOU CAN'T GET THE PART THROUGH SUPPLY?.. AND WOT'S AUTHORIZING YOU TO STEAL IT OFF'N MY ALREADY NAKED BIRD...??
CAAAMON...Y'DON'T B'LIEVE ALL THAT JAZZ. THE (ER) MAINTENANCE OFFICER'S WRITIN' IT UP RIGHT NOW. DON'T SWEAT IT...Y'LL NEVER MISS IT!
ZIP!



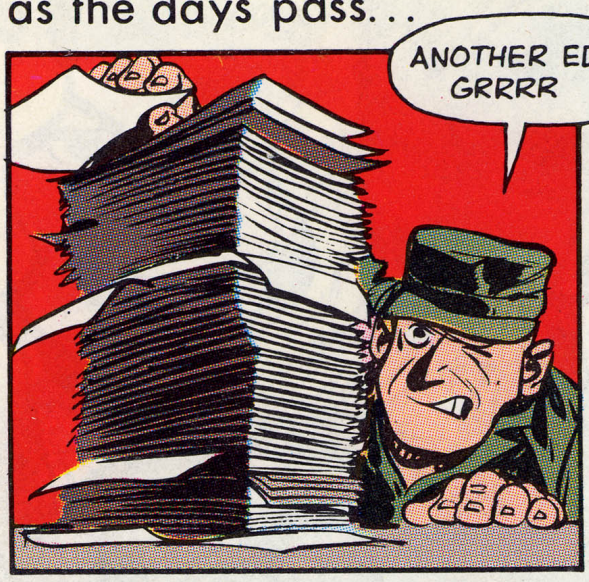
IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BUL

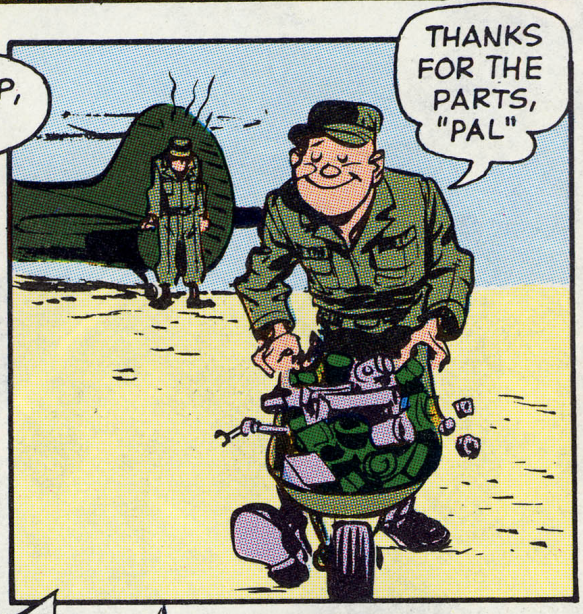
IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

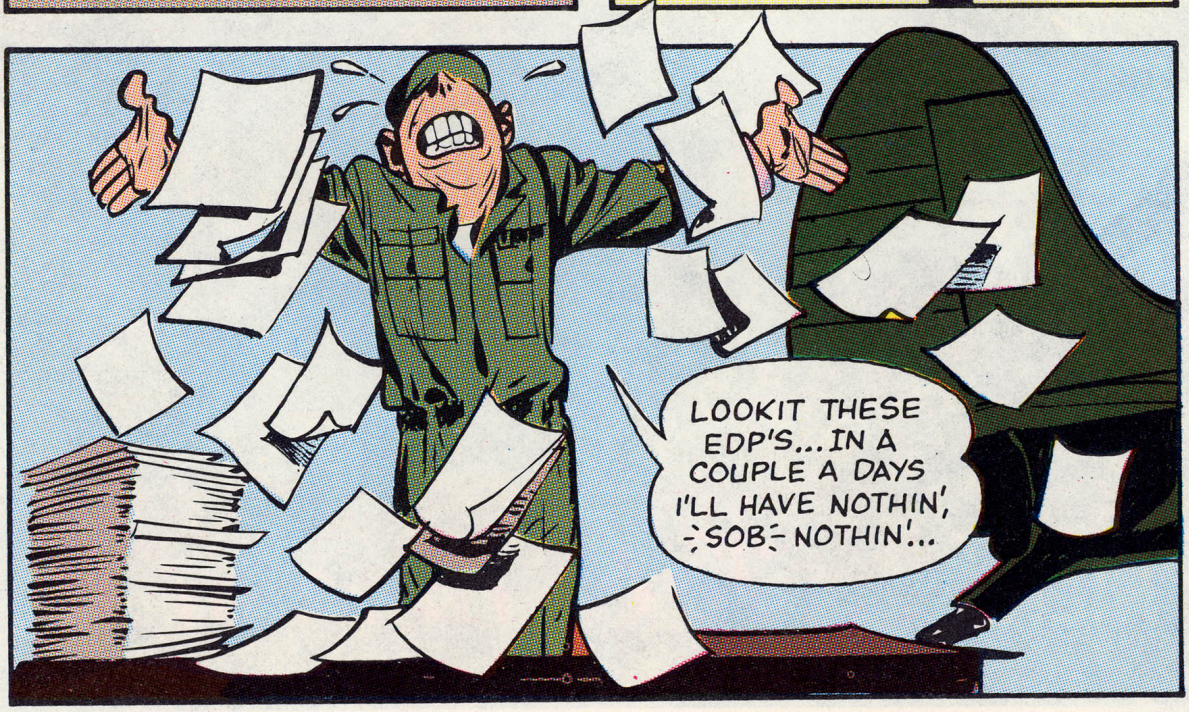
LLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

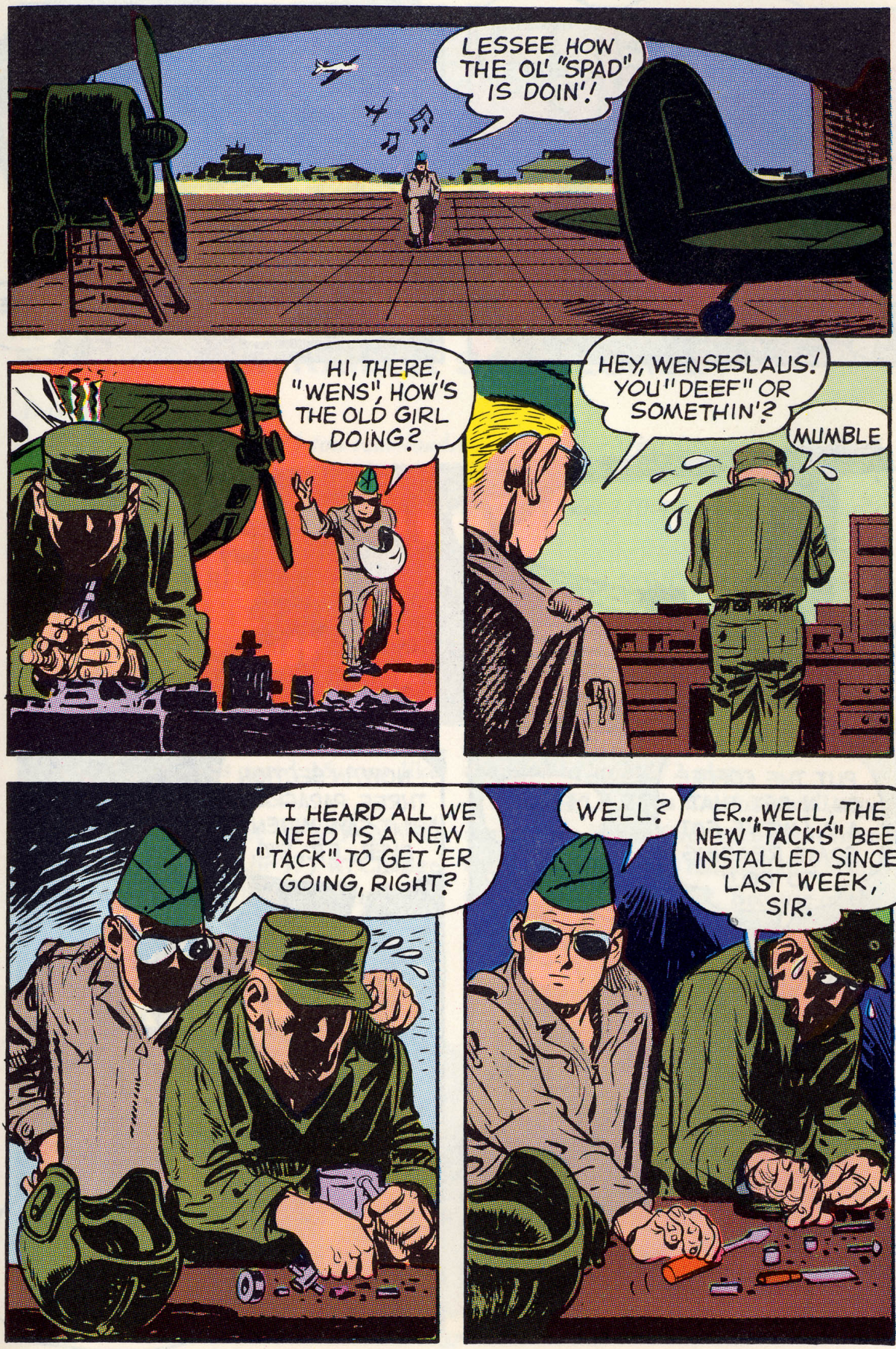


as the days pass...

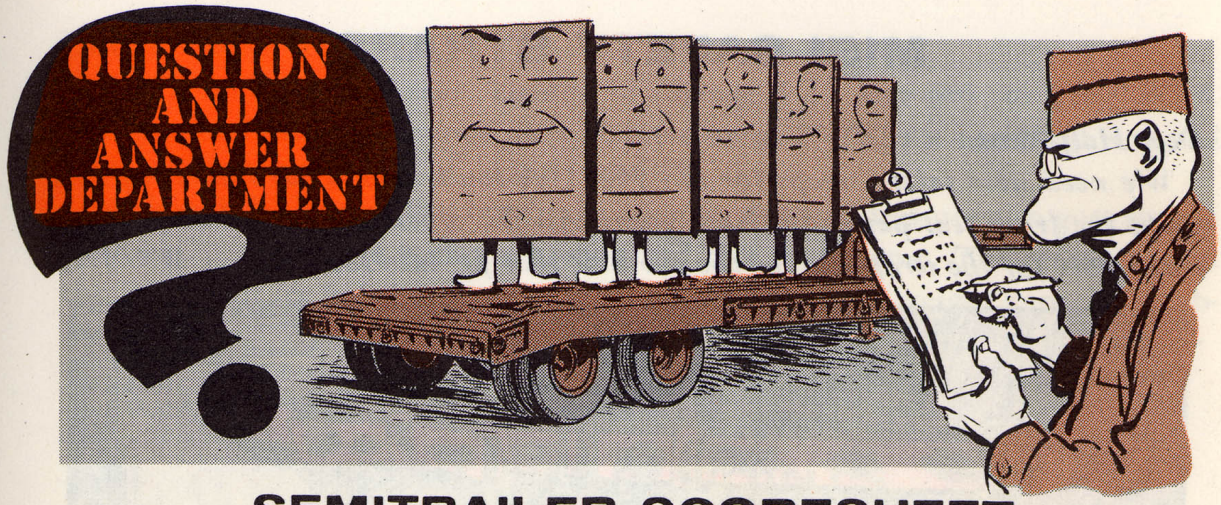







LESSEE HOW THE OL' "SPAD" IS DOIN'!
HI, THERE, "WENS", HOW'S THE OLD GIRL DOING?
HEY, WENSESLAUS! YOU "DEEF" OR SOMETHIN'?
MUMBLE
I HEARD ALL WE NEED IS A NEW "TACK" TO GET 'ER GOING, RIGHT?
WELL?
ER.., WELL, THE NEW "TACK'S" BEEN INSTALLED SINCE LAST WEEK, SIR.

SO WHAT'S THE BIG HOLD-UP?
THESE... SIR... EDP'S
EEEK!
ULP! WHERE'S THE PLANE?
THERE... SIR
PUT THE COFFEE ON, 'N GET THAT A.R.! WE'VE GOT SOME READING TO DO!!
YESSIR, SIR
POW!
NOW, IN SECTION THREE, PARAGRAPH "B" IT SAYS WHEN EVER...ETC. ETC.
THAT COULD BE, BUT IN SECTION FIVE, ETC. ETC.
WOT'S GOIN' ON IN THERE, SAM?
WHO KNOWS! THO' RUMOR HAS IT AS A COUNTER INTELLIGENCE MANEUVER.



SEMITRAILER SCORESHEET

Dear Half-Mast,

We've got a 4-wheel 25-ton rear-loading semitrailer with data plates that call it an Eidal Model ELB 25 Eng SNL 78-7476-525-100—but no pubs.

Haven't found any Engineer pubs listed in DA Pam 310-4 for this rig. What's the score?

Sgt J. R. H.

Dear Sergeant J. R. H.,

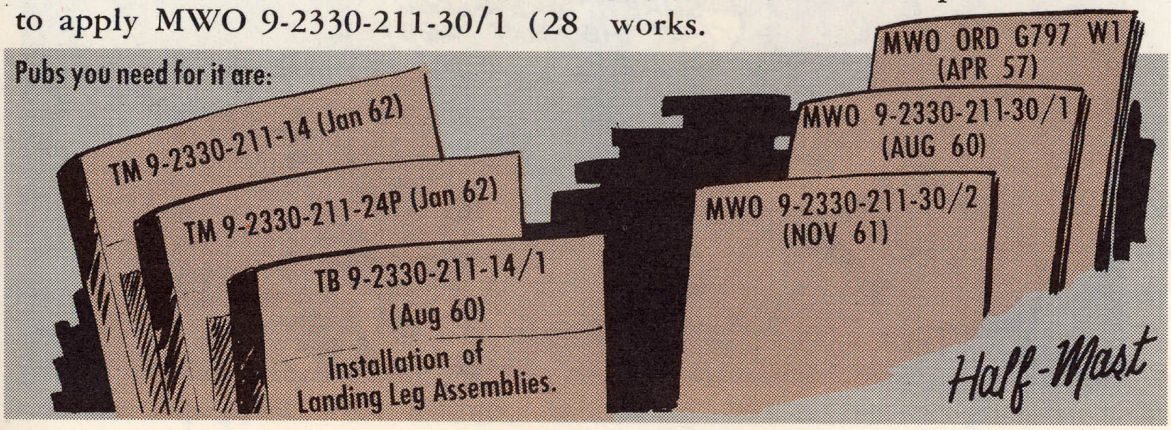
You sure need a scoresheet to find pubs for that one, Sarge.

That semi is now an Ordnance item in the G797-series, along with the M172 15-tonner and the M172A1 25-tonner. And the ELB 25 is rated 15 tons like the M172.

There's an urgent MWO—MWO Ord G797-W1 (11 Apr 57) w/Change 1 (15 Jan 59)—calling for reinforcement of the M172 and M172A1 loading ramps. But the work's to be done by support, and they're also supposed to apply MWO 9-2330-211-30/1 (28 Aug 60) and MWO 9-2330-211-30/2 (24 Nov 61) on the M172 and that Model ELB 25.

Maybe this pubs scoresheet will help shape-up those semitrailers. To finish the shape-up, get the trailer's data plate changed to an M172 plate.

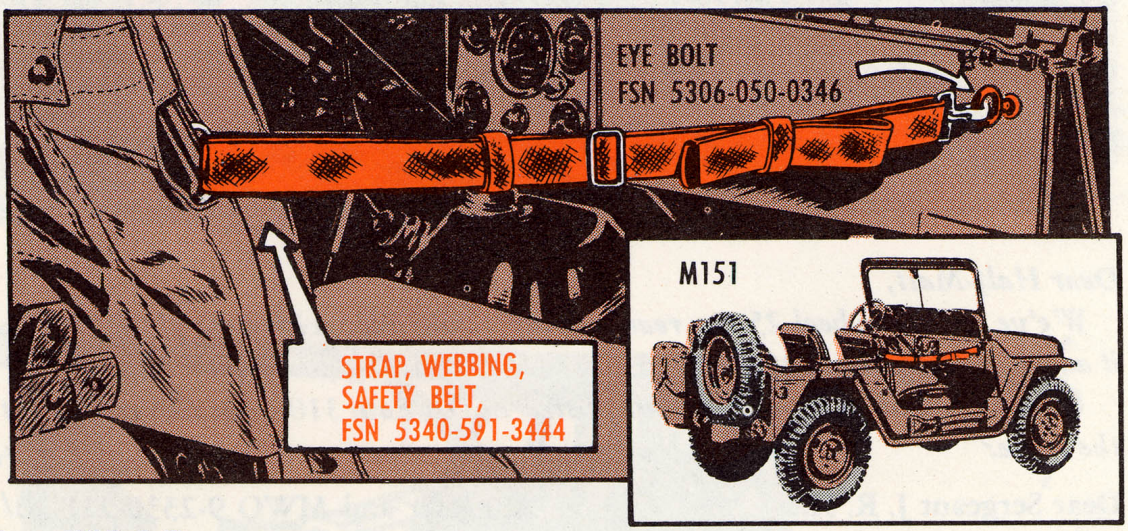
Model ELB 25 is a commercial-type semitrailer. When Ordnance got it from the Engineers, it was redesignated Semitrailer, Low-bed, M172. Because of the limit of the towing vehicle, it was changed from 25-ton to 15-ton. A new payload instruction plate is in the works.



M151 SAFETY STRAPS

Dear Half-Mast,

We need new safety straps for our M151 ¼-ton trucks. That's the strap that keeps the front-seat passenger from going AWOL when you hit a bump. What is the FSN for the strap and for the eye bolt that fits into the dash? *WO J. R.*



Dear WO J. R.,

Ask for Strap, Webbing, safety belt, FSN 5340-591-3444.

The eye bolt is FSN 5306-050-0346.

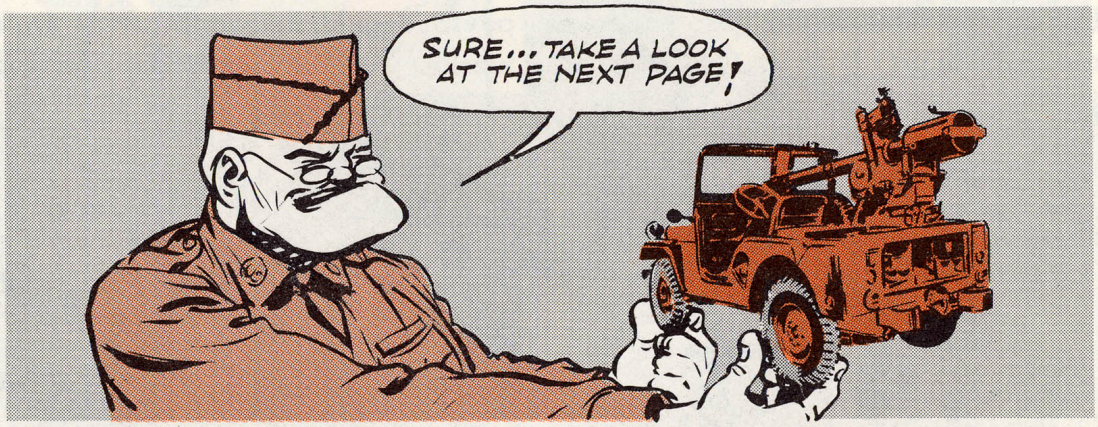
These parts are organizational second echelon items and your supply can get them for you. O'course you got to prove that you need 'em.

Half-Mast

M38A1C TIRE PRESSURE

Dear Half-Mast,

Could you give us the correct tire pressure for Truck, Utility, ¼-ton, mounted with the 106-mm recoilless rifle M40, complete with full crew and ammunition load? *CWO C. S. L.*



Dear CWO C. S. L.,

You'll find a tire pressure change in Change 5 (7 Mar 60), to TM 9-8014. Paragraphs 7 and 248 change the tire pressure to 25-PSI for both highway and cross-country travel for the M38A1 and M170.

Although it's not spelled out in the change, this tire pressure also goes for the M38A1C . . . complete with crew, mounted rifle and ammo. The reason is that the "C" with its fighting load, is still within the gross weight capacity established for the "A1".

Half-Mast

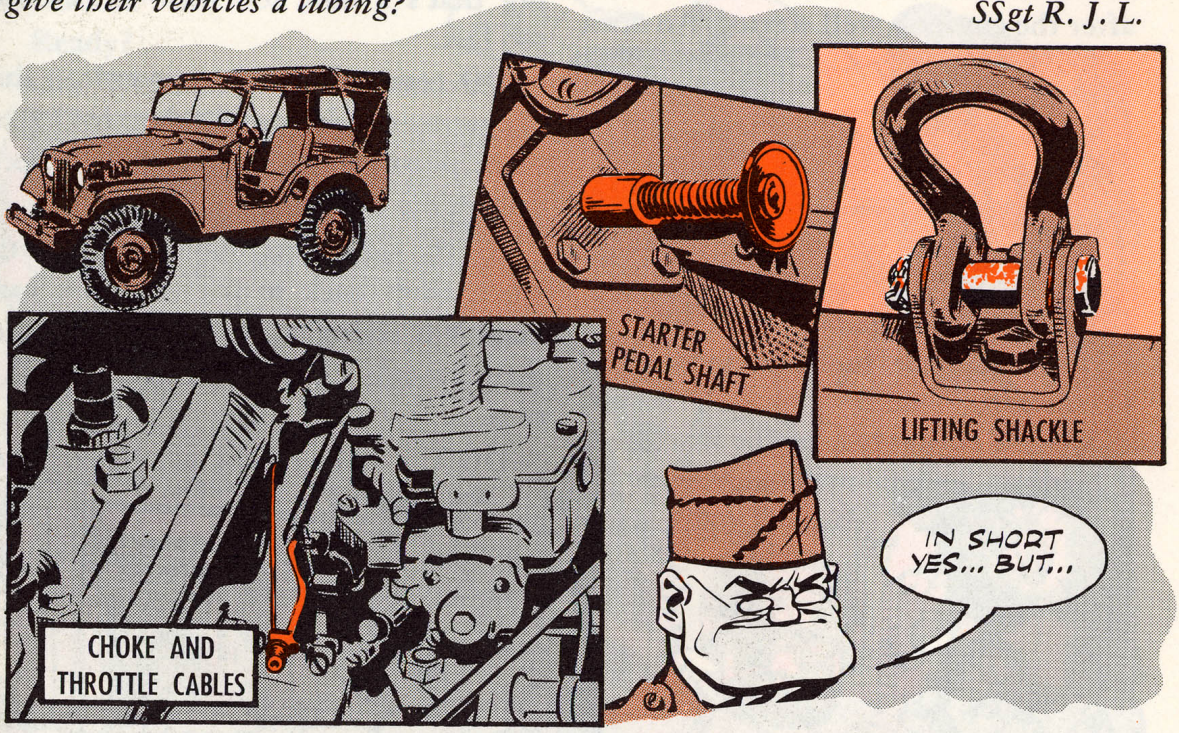
OIL YOUR JOINTS

Dear Half-Mast,

There are a couple places I've noticed get rusted on all types of military wheeled vehicles—the choke and throttle cables. The lifting shackle pins are also likely to be either rusted or so gooked up with paint that they can't be moved. The starter pedal shaft on the M38 ¼-ton jeeps also rusts where it sticks through the floor.

Wouldn't it be a good idea to have the drivers lube these points every time they give their vehicles a lubing?

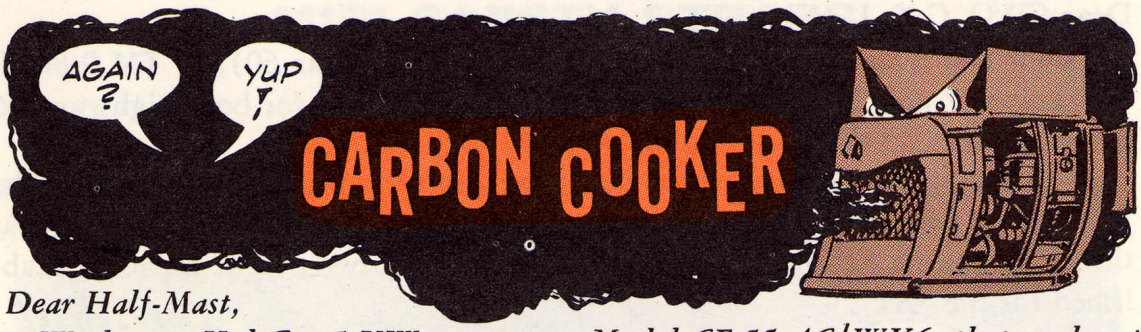
SSgt R. J. L.



Dear Sergeant R. J. L.,

The places you mention are all oil-can points. The latest thinking of the men who write the LO's is that these points and all other working parts that are not equipped with fittings, or the LO does not specifically prohibit lubing, should get a going over with the oil can every 1,000 miles or quarterly.

Half-Mast



Dear Half-Mast,

We have a Hol-Gar 5 KW generator, Model CE-55-AC/WK6, that cooks up carbon so fast we have to pull the engine head about every 150 operating hours.

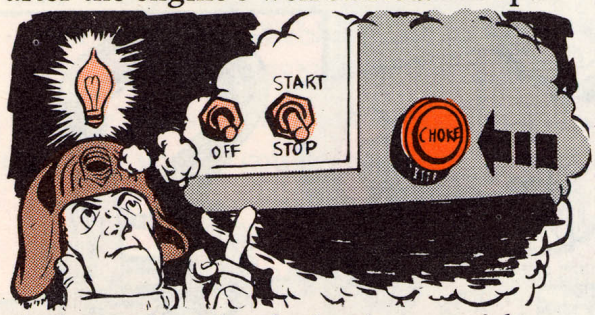
Is this a rare case, or do they all carbon up in such a short time?

SP5 H. D. D.

Dear Specialist H. D. D.,

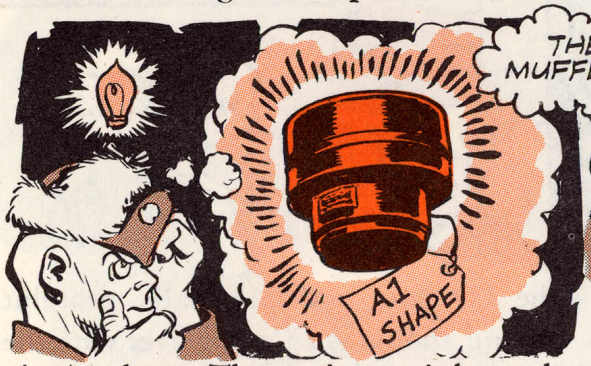
Nope, it's not rare on these rigs. But when an engine builds up carbon that fast, chances are you need to check out your operation with these DO and DON'T reminders—

DO remember to close the choke after the engine's well started. An open



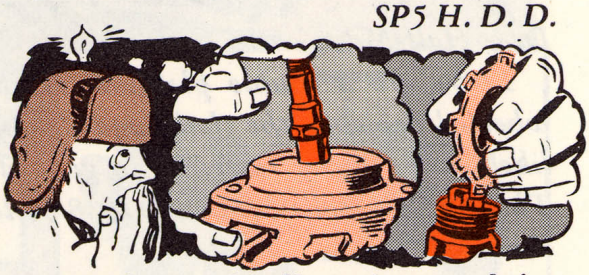
choke makes the fuel mix too rich to burn clean.

DON'T forget to keep the air cleaner



in A1 shape. The engine can't burn the fuel mix clean when it's choking for air.

DON'T forget to clean and gap spark plugs, then check timing. You can't get

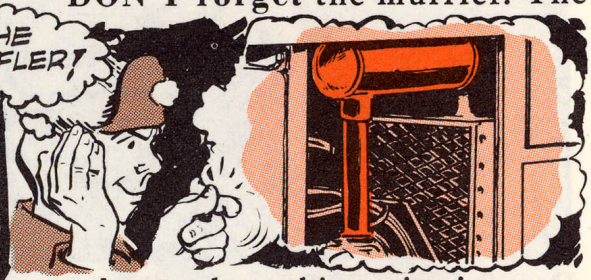


a clean flame with dirty plugs, and timing that's a mite too slow—or a mite too fast.

DO remember, when you clean the plugs, to check for oil that indicates worn piston rings. Oil pumpers collect carbon the quickest.

All the oil in Oklahoma won't bring worn rings back to life—but you can keep 'em living a long time with the right amount of clean oil in the crankcase.

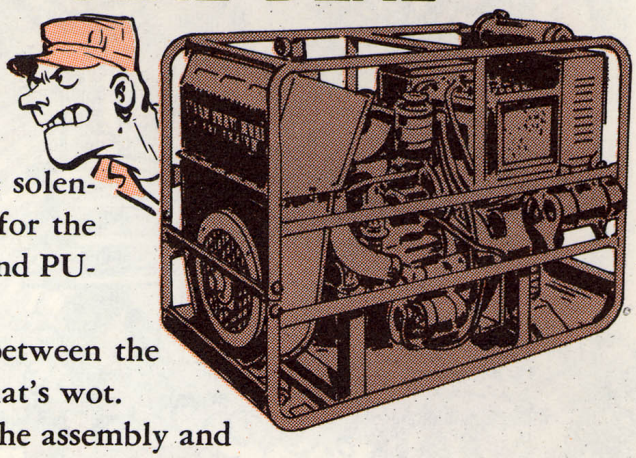
DON'T forget the muffler. The



standup stack on this engine is a natural trap for soot and scale. Unless you remove it for cleaning, the soot and flake will fall back into the manifold.

Half-Mast

A SORTA SEAL DEAL



There's something missing on the solenoid coil, relay and switch assembly for the starter motor on your PU-286A/G and PU-286B/G generator sets.

It's a waterproof seal or gasket between the solenoid coil and the switch plate, that's wot.

Which means water can get into the assembly and foul up the whole works. Ugh. Probably doing it right now, too.

Since there's no regular gasket or pre-formed seal supposed to be there, what's needed is some sealant—like Permatex or stuff like that there.

You can't very well do the job yourself, so deal your support unit in on the operation.

Ready?

OK. With the assembly removed from the starter motor:

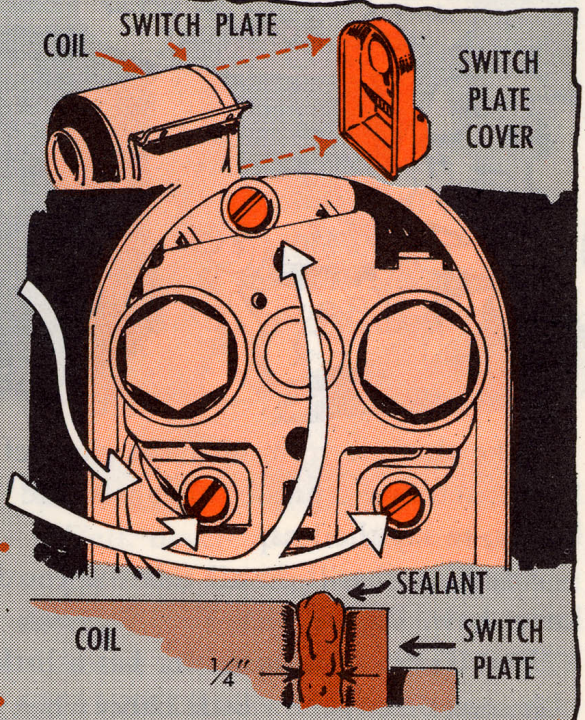
1 Take off the switch plate cover. Check for any signs of water, corrosion or gook. If things aren't right your support unit will have to take over.

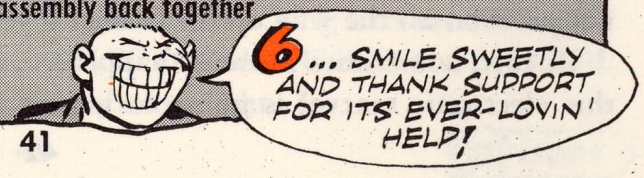
2 If everything's OK, unsolder the braided wire from the switch plate.

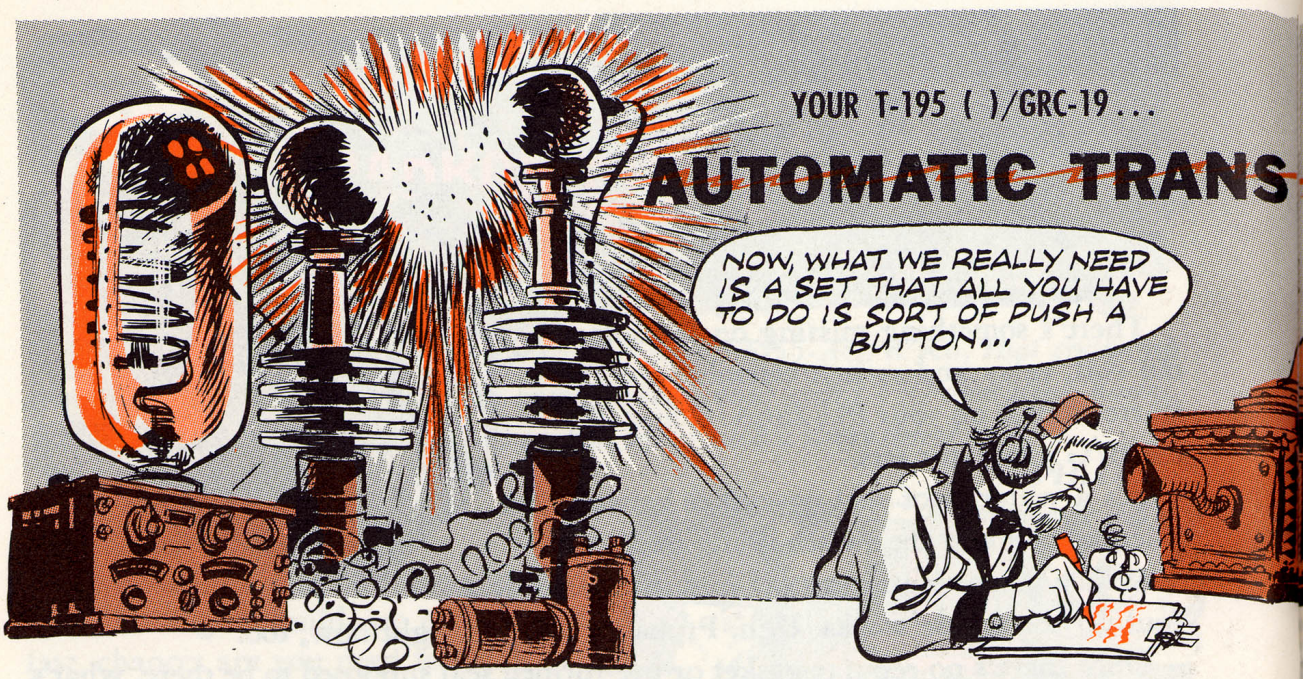
3 Take out the three screws (H-943) that hold the switch plate (K500) to the solenoid coil (L501).

4 Move the switch plate forward about a quarter of an inch and put some sealant between the plate and the coil to give you a watertight seal.

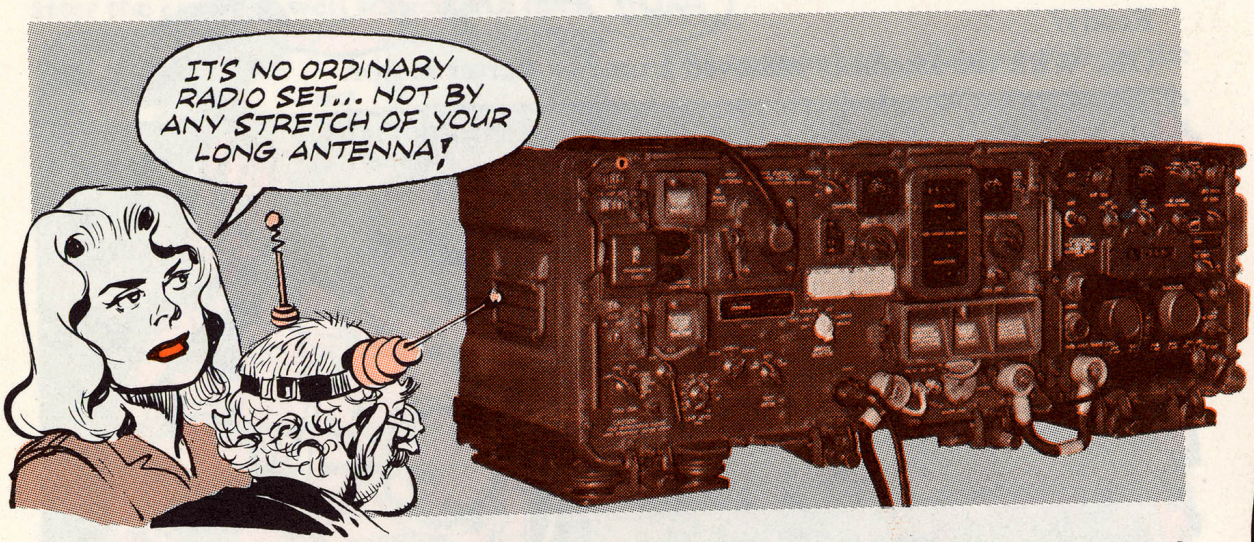
5 Now backtrack by the numbers, putting the assembly back together just the reverse of the way you took it apart.







And then one day from the laboratory came a squeal, a squawk and a constant wave and they named it the AN/GRC-19.



Take that electromechanical channel selection system. Autotune, it's called. Seven automatic pre-set channels and one channel for manual tuning. Real handy, to say the least.

Anything that'll do all this for you deserves a little extra care, patience and know-how. Right?

That T-195 ( ) transmitter has a little peculiarity you ought to know about.

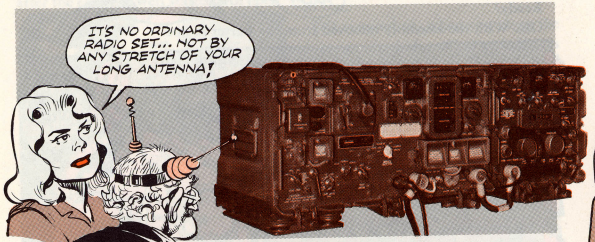
It sometimes gets a little balky when you try to shift frequency from the manual position all the way up to channel seven.

In fact, sometimes nothing happens . . . and you sit there wondering when this electronic marvel is going to get on the cotton-pickin' beam.

YOUR T-195 ( )/GRC-19 . . .

AUTOMATIC TRANS-MISSION—MORE OR LESS

And then one day from the laboratory came a squeal, a squawk and a constant wave and they named it the AN/GRC-19.



Take that electromechanical channel selection system. Autotune, it's called. Seven automatic pre-set channels and one channel for manual tuning. Real handy, to say the least.

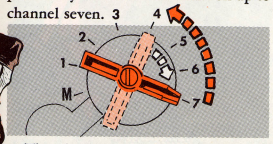
Anything that'll do all this for you deserves a little extra care, patience and know-how. Right?

That T-195 ( ) transmitter has a little peculiarity you ought to know about.

It sometimes gets a little balky when you try to shift frequency from the manual position all the way up to channel seven.

In fact, sometimes nothing happens . . . and you sit there wondering when this electronic marvel is going to get on the cotton-pickin' beam.

Well, all you've gotta do is shift the channel selector back to a lower channel (say three or four) and let it complete its cycle there. Then shift on up to channel seven.



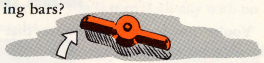
That Autotune is going to do the job a lot better and faster than you could do it yourself so don't try to hurry it. Just because your hands are free for a moment, don't try to give a little twist here and a little boost there.

When you change channels, you should wait—at least 30 seconds before you key the set. If the TUNING INDICATOR light does not come on when you work the PUSH-TO-TALK switch, back off and wait a little longer.

Sometimes when the transmitter has been manually tuned from one frequency to another in the same band, the light may not come on at all when you return to automatic. So you turn the BAND SELECTOR to the next higher or lower band . . . let it cycle there . . . and then turn it back to the band you want.

This realines the setup and you should get the go-ahead light.

Speaking of the BAND SELECTOR, take a look at it and the TUNING CONTROL knob. You see those locking bars?

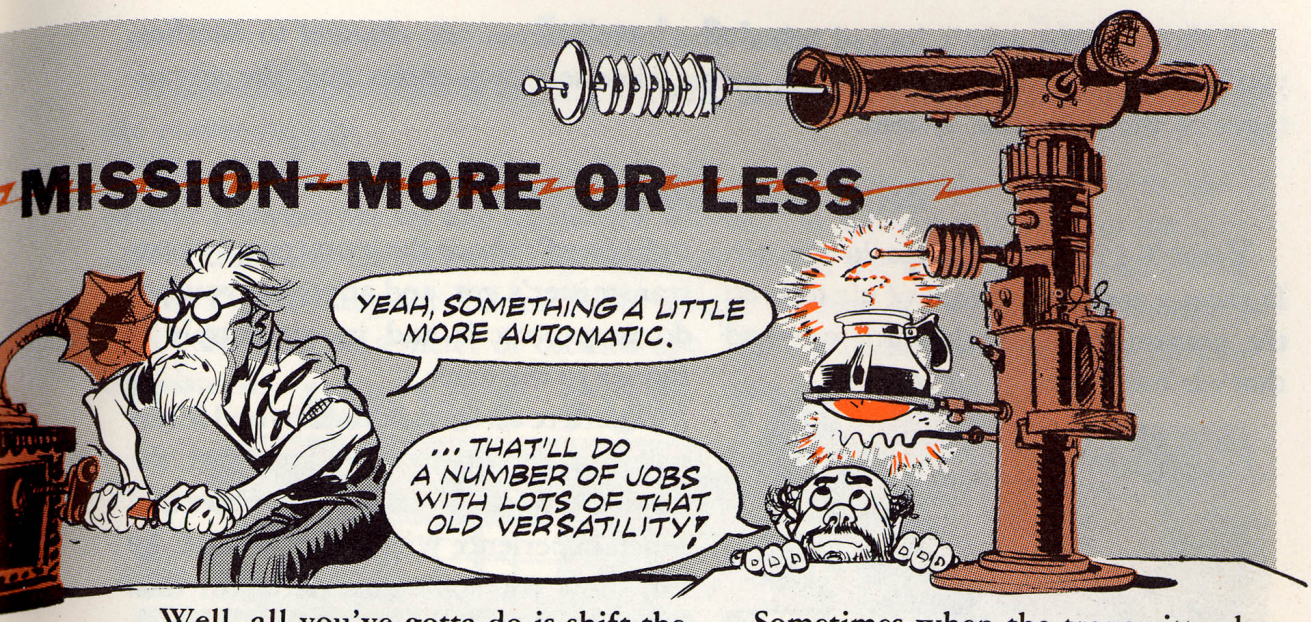


Well, never operate the transmitter unless those locking bars are tightened down.

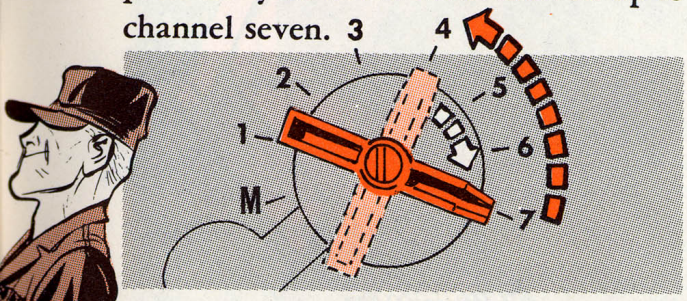
Above all, never move the PRESET CHANNELS switch without first making sure the locking bars on the BAND SELECTOR and TUNING CONTROL knobs are tight.

MORE

MISSION-MORE OR LESS



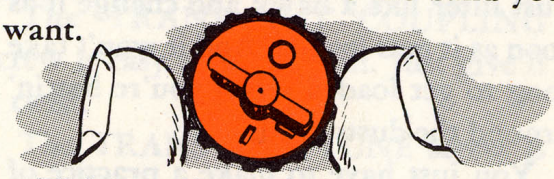
Well, all you've gotta do is shift the channel selector back to a lower channel (say three or four) and let it complete its cycle there. Then shift on up to channel seven.



That Autotune is going to do the job a lot better and faster than you could do it yourself so don't try to hurry it. Just because your hands are free for a moment, don't try to give a little twist here and a little boost there.

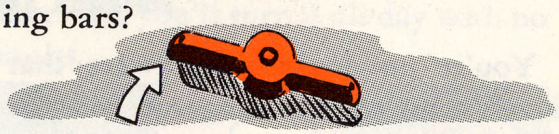
When you change channels, you should wait—at least 30 seconds before you key the set. If the TUNING INDICATOR light does not come on when you work the PUSH-TO-TALK switch, back off and wait a little longer.

Sometimes when the transmitter has been manually tuned from one frequency to another in the same band, the light may not come on at all when you return to automatic. So you turn the BAND SELECTOR to the next higher or lower band . . . let it cycle there . . . and then turn it back to the band you want.



This realines the setup and you should get the go-ahead light.

Speaking of the BAND SELECTOR, take a look at it and the TUNING CONTROL knob. You see those locking bars?



Well, never operate the transmitter unless those locking bars are tightened down.

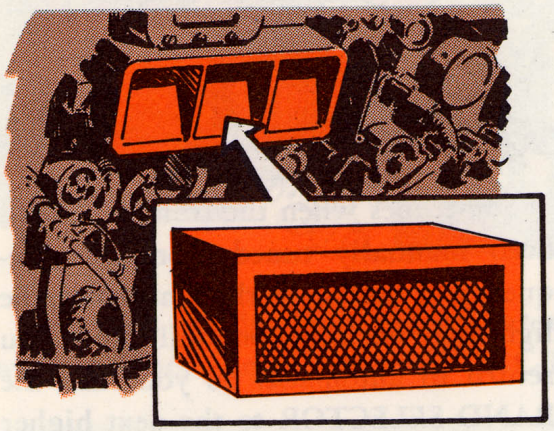
Above all, never move the PRESET CHANNELS switch without first making sure the locking bars on the BAND SELECTOR and TUNING CONTROL knobs are tight.

PS MORE

If those knobs aren't locked when you switch from one channel to another, you're going to lose control of the preset channel frequencies and the advantages of the Autotune system.

Gasp...Sob...Choke...Grrrr

Your T-195 really gulps in the air. It takes a constant stream of air to keep the transmitter from heating up—and that air has got to be clean.

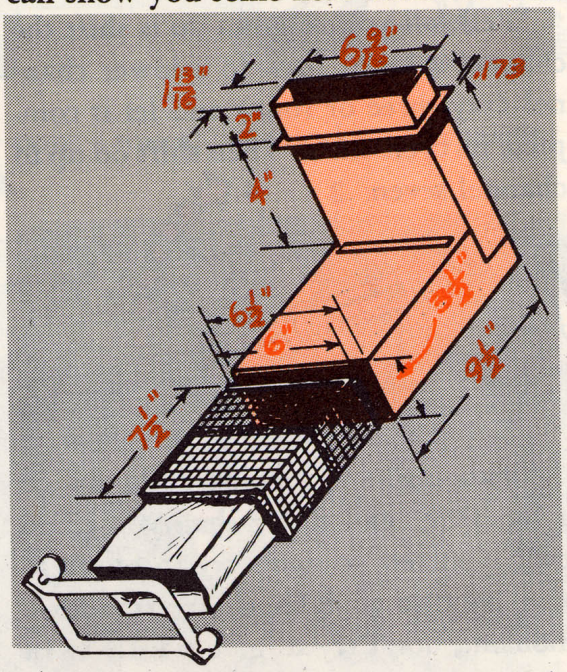


That's why you have to watch the dust filter like a hawk and change it as soon as it gets loaded. And it won't take long to get loaded when you're battin' around the dusty trail.

You just have to make a practice of checking the filter every couple of hours or so under real dusty conditions.

As for desert or sandy operations . . . ugh! Sand's about the worst enemy your transmitter's got, and anything you can do to protect it and its air supply is money in the bank.

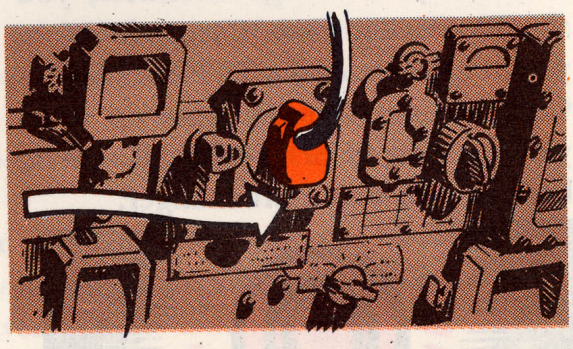
There're all sorts of improvised filters you can rig up to help keep out the sand and dust. Any oldtimer who's had much experience with the AN/GRC-19 can show you some neat tricks for this.



Antenna Terminal Guard

You're no doubt well aware that there's some mighty dangerous voltage present in your T-195. One of the places you have to be real careful about is the antenna terminal, which should be covered by a terminal guard or cap.

But these caps have a habit of getting lost and you won't find 'em in your unit's parts manuals. You have to get your support to round up Cap, Electrical, FSN 5940-566-3862, and it's listed in TM 11-5820-335-35P for the T-195.



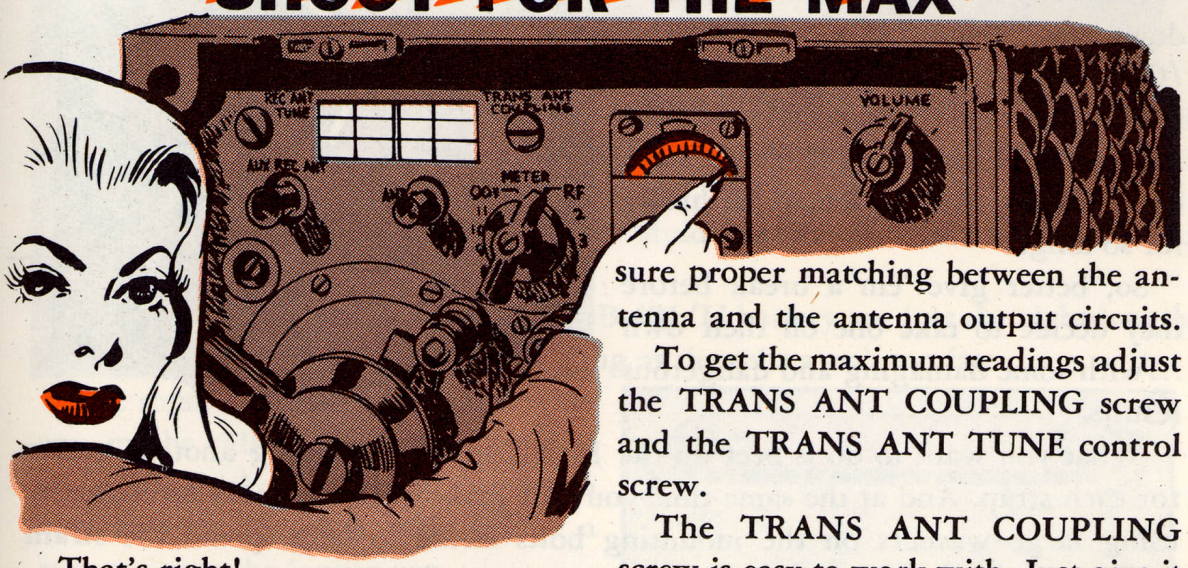
Battery In Between

It could be your transmitter is a T-195B. All the B models have transistors in the power supply.

When you're operating or testing this model, always be sure you've got a battery between the set and the power source. The battery will protect the transistors from any transient voltage that may exceed the transistor voltage rating.

Don't go looking for the transient voltage because it's so fast and fleeting it won't show up on a meter or oscilloscope. But it's there and it can flub up your transistors.

SHOOT FOR THE MAX



That's right!

All the way over to maximum is where the meter (M301) needle should be when you're checking out the RF position on meter switch S301 of Radio Sets RT-66, -67 and -68/GRC.

The RF indicator is not like positions 2-11, all of which call for a near red meter reading when peaking. RF needs the white . . . all the way over to the right. The maximum.

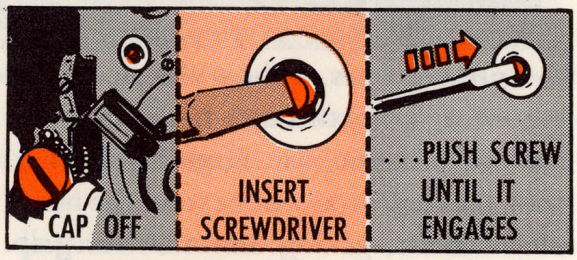
Also unlike positions 2-11, the RF indicator doesn't have to be checked out regularly. You adjust it when the antenna is first installed—and then only when there's a change in antennas or antenna elements or a big change in the frequency range.

The purpose of the RF check is to insure proper matching between the antenna and the antenna output circuits.

To get the maximum readings adjust the TRANS ANT COUPLING screw and the TRANS ANT TUNE control screw.

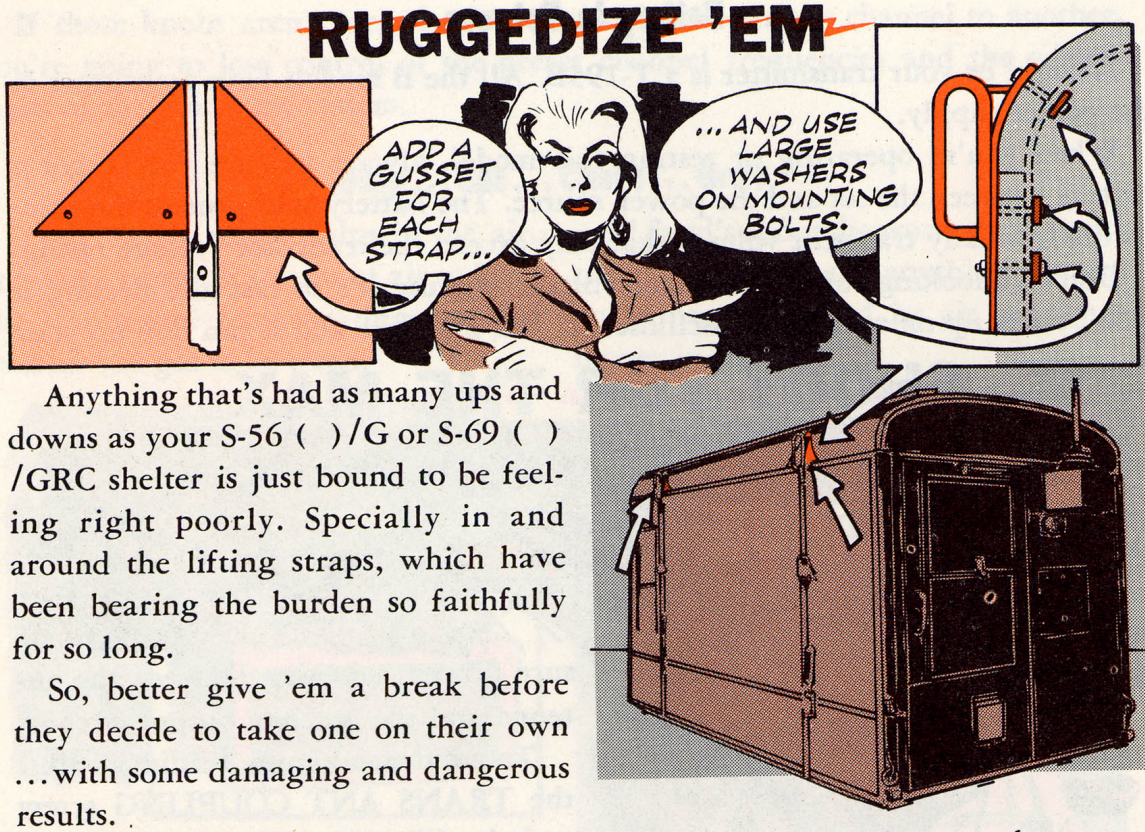
The TRANS ANT COUPLING screw is easy to work with. Just give it a twist.

The TRANS ANT TUNE screw is tricky. Remove the waterproof cap (attached to the set by a retaining chain) and insert a screwdriver into the hole. Then push the adjusting screw in until it engages. Make sure it does engage... otherwise, you'll turn it all day with no results.



Para 13-h, page 27, of TM 11-289 (3 Dec 53) spells out the procedure in detail.

RUGGEDIZE 'EM



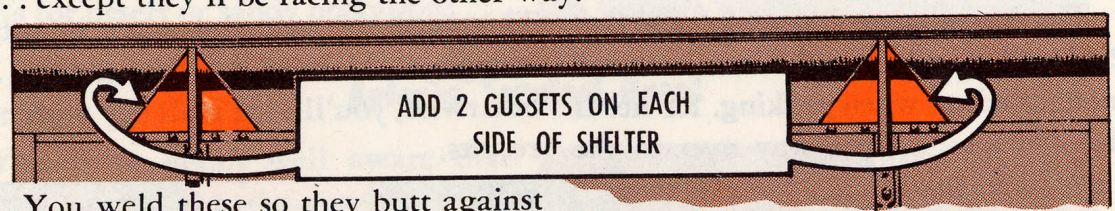
Anything that's had as many ups and downs as your S-56 ( )/G or S-69 ( )/GRC shelter is just bound to be feeling right poorly. Specially in and around the lifting straps, which have been bearing the burden so faithfully for so long.

So, better give 'em a break before they decide to take one on their own ...with some damaging and dangerous results.

What you want to do is beef up the lifting straps by adding another gusset for each strap. And at the same time you can make each assembly stronger by using large washers on the mounting bolts inside to help spread the strain around.

If your shelter is scheduled for some support work you might ask your support unit to do this at the same time. But if it isn't, you can handle the job yourself with maybe some help from your support unit.

You need to fabricate four additional gussets just like the four present ones . . . except they'll be facing the other way.



You weld these so they butt against the present ones. When you insert the mounting bolts through to the inside of the shelter, you use large washers so they'll extend way out beyond the heads of the bolts, giving 'em a better grip. You'll have to contour the washers to get a good fit.

And, speaking of lifting, it's a good time to remind yourself to always stay clear of these shelters when they're being lifted and moved. Those lifting straps have been known to break—real sudden like. Which is why you're beefing 'em up now.

So stay clear—even after they're reinforced.

FOR SHORT LINKS: LONGER HOLES

Well, that's the way it goes.

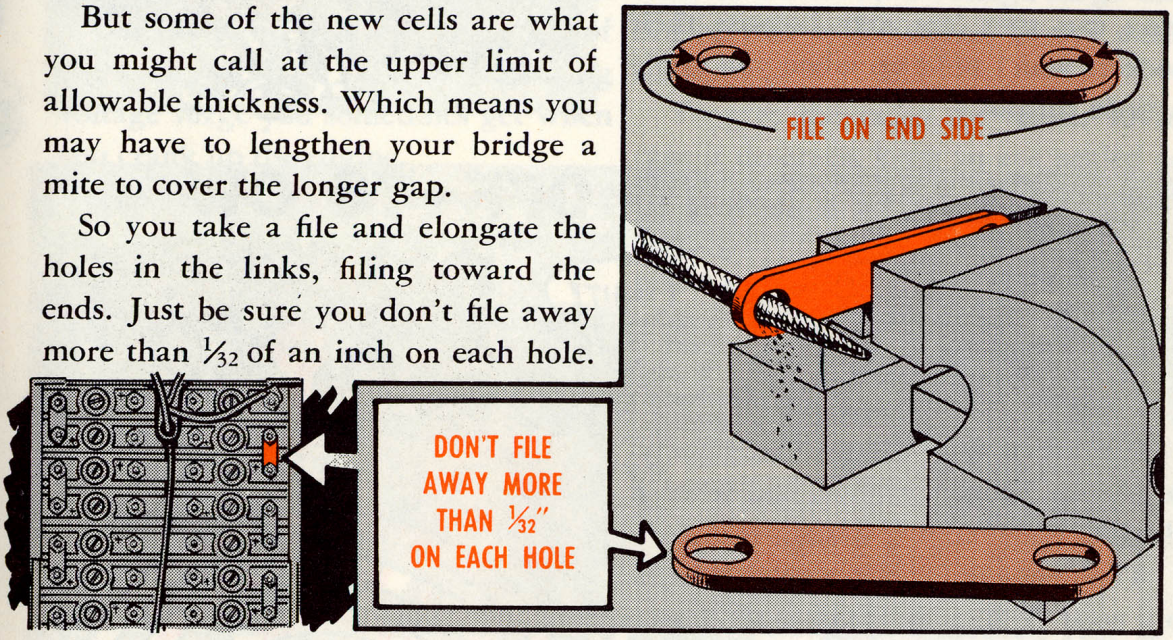
You come up with a nice little bridge to span the gap . . . and then suddenly you find the river's widened.

This makes for one of those famous "fluid" situations, which calls for some on-the-spot improvisin'.

The battery terminal links for your BB-401/U battery are just the right length to couple up the BB-403/U cells—as long as the cells aren't too fat.

But some of the new cells are what you might call at the upper limit of allowable thickness. Which means you may have to lengthen your bridge a mite to cover the longer gap.

So you take a file and elongate the holes in the links, filing toward the ends. Just be sure you don't file away more than 1/32 of an inch on each hole.



Since you may have to file a fistfullof links, you'll want to use a vise and the right file for the job. Your best bet is File, hand, round type, single cut, smooth cut face, 6 inches long, FSN 5110-234-6550, and Handle, file, wood, 1 inch diameter x 4 inches long, FSN 5110-263-0342.

For the most part, you'll only have to do this on the shorter, 5/6-in links.

But before you do any of 'em you'll want to try mixing fat cells with thin ones to try to keep from having to do any filing at all. You only file the links as a last resort.

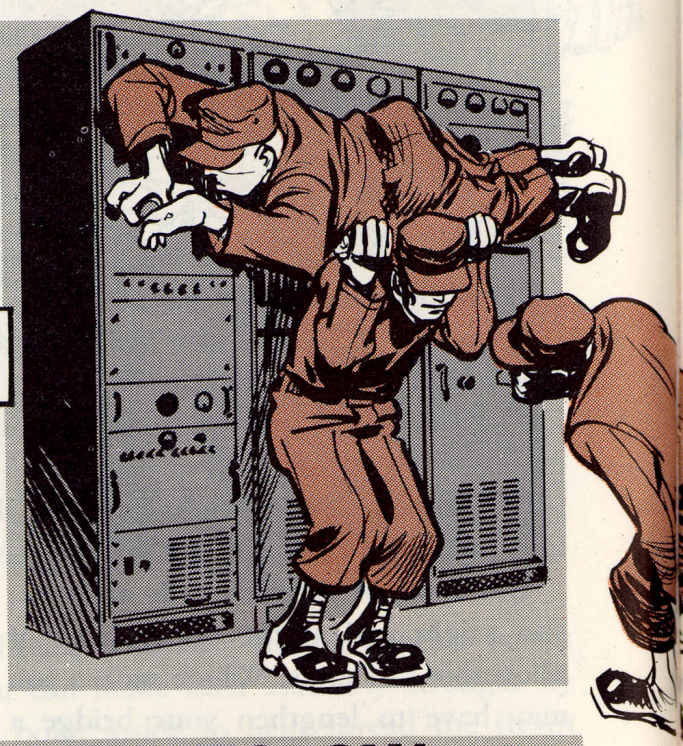
SOME WILL—SOME WON'T

Having trouble keeping the MC, BAND and KC control knobs on your Modulator-Oscillator Group OA-2180/FRT-51 from slipping on the shafts?

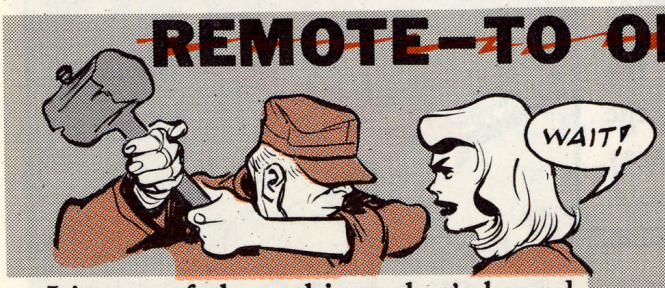
Could be somebody's slipped you a soft-headed screw—or two.

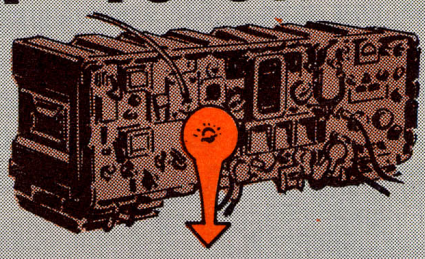
The socket-head screws that hold these knobs to their shafts are supposed to be of hardened steel. But, some are showing up that're too soft for the job. You can spot 'em easy because their sockets won't hold up when you apply a little torque.

To replace 'em, use Screw, cap, socket head, FSN 5305-805-6598. You'll find 'em in SM 9-1-5305 (Feb 61).



REMOTE—TO OFF—TO CW

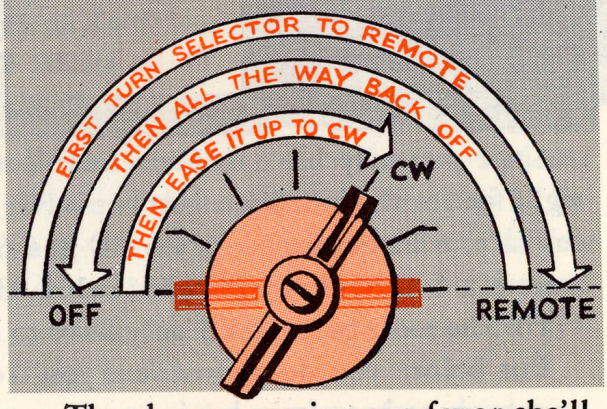




It's one of those things that's bound to happen sooner or later, and when it does it can be mighty frustratin'.

The contacts for the service selector on your T-195 ( )/GRC-19 transmitter bug out and you lose control of the situation.

But before you start twisting the selector like mad trying to pick up a transmitting contact, try this technique. It may not work 100 per cent of the time, but it'll get you there faster than any frantic twisting.



The chances are in your favor she'll be ready to put out in this position.

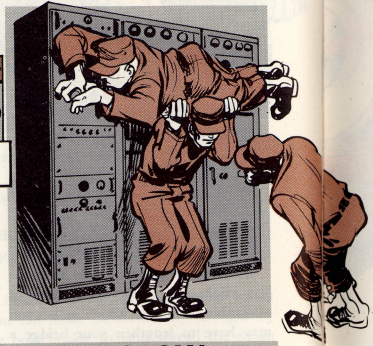
SOME WILL—SOME WON'T

Having trouble keeping the MC, BAND and KC control knobs on your Modulator-Oscillator Group OA-2180/FRT-51 from slipping on the shafts?

Could be somebody's slipped you a soft-headed screw—or two.

The socket-head screws that hold these knobs to their shafts are supposed to be of hardened steel. But, some are showing up that're too soft for the job. You can spot 'em easy because their sockets won't hold up when you apply a little torque.

To replace 'em, use Screw, cap, socket head, FSN 5305-805-6598. You'll find 'em in SM 9-1-5305 (Feb 61).

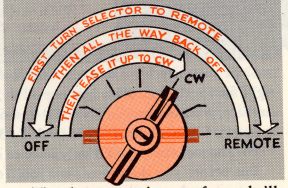


REMOTE—TO OFF—TO CW

It's one of those things that's bound to happen sooner or later, and when it does it can be mighty frustratin'.

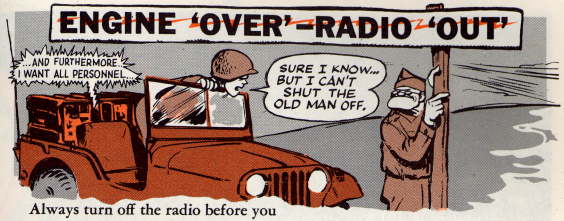
The contacts for the service selector on your T-195 ( )/GRC-19 transmitter bug out and you lose control of the situation.

But before you start twisting the selector like mad trying to pick up a transmitting contact, try this technique. It may not work 100 per cent of the time, but it'll get you there faster than any frantic twisting.



The chances are in your favor she'll be ready to put out in this position.

ENGINE 'OVER'—RADIO 'OUT'



Always turn off the radio before you start your engine.

Sounds simple enough... but there're times when it's easier said than done.

Like when you've got to start the engine, and the CO's on the air with the poop for the group... and you find yourself between a sweat and a swivet.

But the thing is, the tender tubes of the radio set can't take the lightning voltage surge you sometimes get when you crank up the engine.

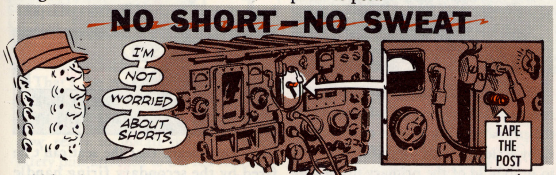
The regulator's not fast enough on the draw to take over and prevent the surge.

You can also get a tube-sizzling surge when you "gun" the engine while it's idling. So smooth and easy does it when you're powering a radio set.

And, to top it off, keep in mind one other little thing. A loose battery connection can set up a voltage surge that can be just as damaging as any other surge.

To give the radio the tender lovin' care it deserves, keep an eye peeled on the battery connections. Make sure there's no loose cable bouncing from pillar to post.

NO SHORT—NO SWEAT



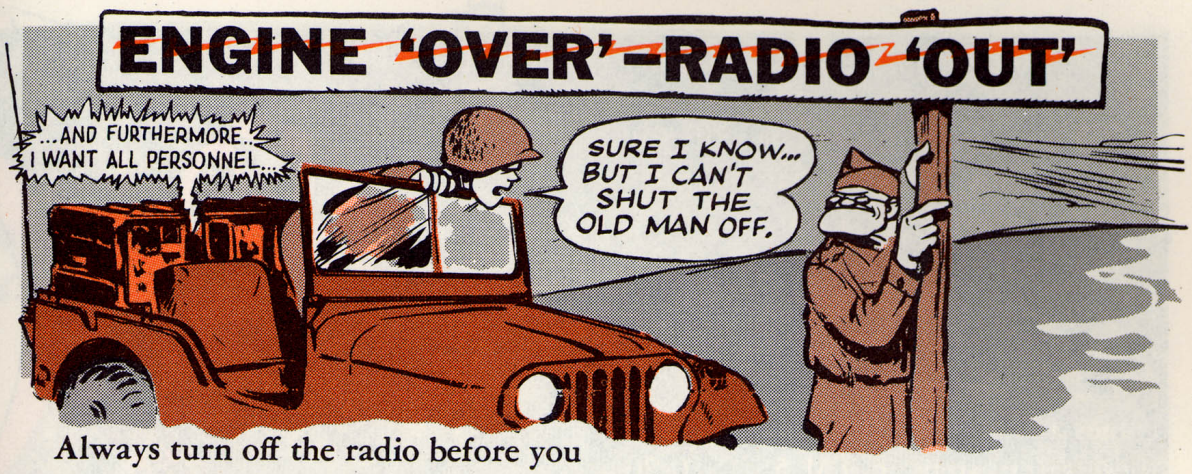
Take the natural bounce and vibration of your vehicle-mounted AN/GRC-19 radio set, add a little cable tension—and what do you get?

In short, a short.

The right-angle plug connector on the RF cable (CG-1127/U) has a sneaky habit of turning clockwise and bumping against the binding post on the R-392/URR receiver. And when it does, you're shorted.

So, take a strip of electrical insulating tape and wrap it neatly around the binding post. This'll short-stop any short in the making.

ENGINE 'OVER'—RADIO 'OUT'



Always turn off the radio before you start your engine.

Sounds simple enough . . . but there're times when it's easier said than done.

Like when you've got to start the engine, and the CO's on the air with the poop for the group . . . and you find yourself between a sweat and a swivet.

But the thing is, the tender tubes of the radio set can't take the lightning voltage surge you sometimes get when you crank up the engine.

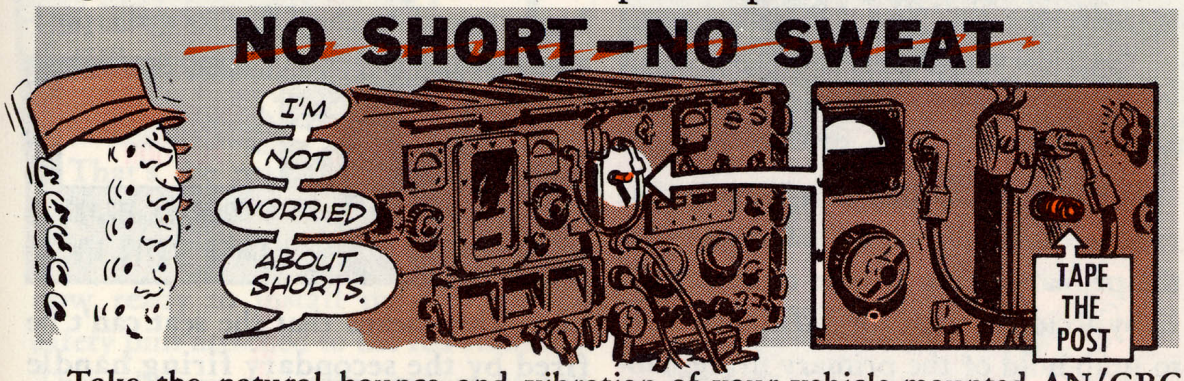
The regulator's not fast enough on the draw to take over and prevent the surge.

You can also get a tube-sizzling surge when you "gun" the engine while it's idling. So smooth and easy does it when you're powering a radio set.

And, to top it off, keep in mind one other little thing. A loose battery connection can set up a voltage surge that can be just as damaging as any other surge.

To give the radio the tender lovin' care it deserves, keep an eye peeled on the battery connections. Make sure there's no loose cable bouncing from pillar to post.

NO SHORT—NO SWEAT



Take the natural bounce and vibration of your vehicle-mounted AN/GRC-19 radio set, add a little cable tension—and what do you get?

In short, a short.

The right-angle plug connector on the RF cable (CG-1127/U) has a sneaky habit of turning clockwise and bumping against the binding post on the R-392/URR receiver. And when it does, you're shorted.

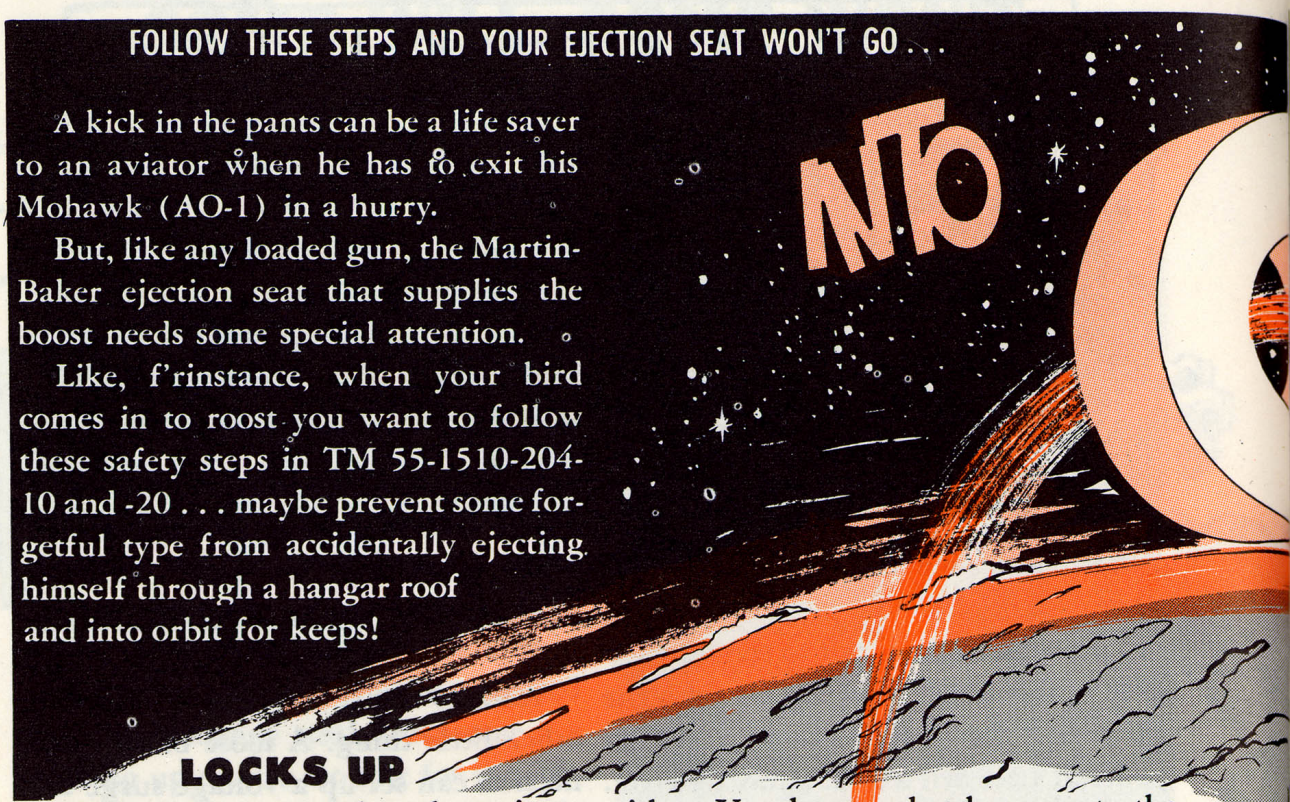
So, take a strip of electrical insulating tape and wrap it neatly around the binding post. This'll short-stop any short in the making.

FOLLOW THESE STEPS AND YOUR EJECTION SEAT WON'T GO . . .

A kick in the pants can be a life saver to an aviator when he has to exit his Mohawk (AO-1) in a hurry.

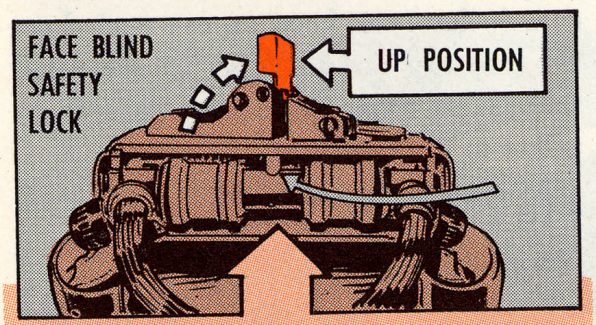
But, like any loaded gun, the Martin-Baker ejection seat that supplies the boost needs some special attention.

Like, f'rinstance, when your bird comes in to roost you want to follow these safety steps in TM 55-1510-204-10 and -20 . . . maybe prevent some forgetful type from accidentally ejecting himself through a hangar roof and into orbit for keeps!



LOCKS UP

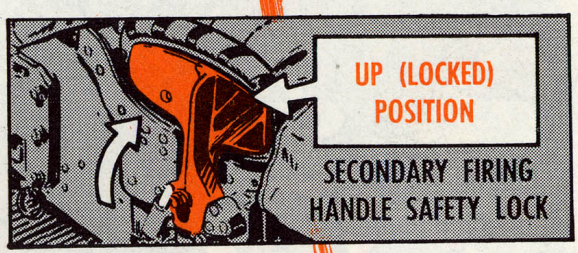
First, check to see that the aviator has flipped the face blind safety lock to the **UP** (locked) position.



What actually happens here is that raising the flag lowers a safety pin into the primary firing handle cross-bar. So if, by accident, some forgetful type were to grab hold of the primary firing handle it wouldn't yank the face blind . . . that's the purpose of the lock.

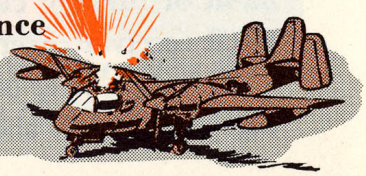
Naturally, when you can't move that face blind handle you can't pull the firing cable attached to the catapult sear either. You know what happens to the seat when the sear is pulled—the spring loaded firing pin fires the ejection gun and away she goes! (Same as squeezin' a trigger.)

Next, check to see that the secondary firing handle swivel type safety lock has been moved to the **UP** (locked) position.



This means that the seat can't be fired by the secondary firing handle which is also attached to the catapult sear by cable.

So far—so good. But even with both the primary and secondary locks UP, there's still a chance the seat could



FOLLOW THESE STEPS AND YOUR EJECTION SEAT WON'T GO . . .

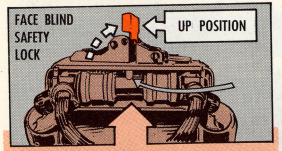
A kick in the pants can be a life saver to an aviator when he has to exit his Mohawk (AO-1) in a hurry.

But, like any loaded gun, the Martin-Baker ejection seat that supplies the boost needs some special attention.

Like, f'rinstance, when your bird comes in to roost you want to follow these safety steps in TM 55-1510-204-10 and -20 . . . maybe prevent some forgetful type from accidentally ejecting himself through a hangar roof and into orbit for keeps!

LOCKS UP

First, check to see that the aviator has flipped the face blind safety lock to the **UP** (locked) position.



What actually happens here is that raising the flag lowers a safety pin into the primary firing handle cross-bar. So if, by accident, some forgetful type were to grab hold of the primary firing handle it wouldn't yank the face blind . . . that's the purpose of the lock.

Naturally, when you can't move that face blind handle you can't pull the firing cable attached to the catapult sear either. You know what happens to the seat when the sear is pulled—the spring loaded firing pin fires the ejection gun and away she goes! (Same as squeezin' a trigger.)

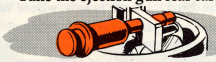
Next, check to see that the secondary firing handle swivel type safety lock has been moved to the **UP** (locked) position. This means that the seat can't be fired by the secondary firing handle which is also attached to the catapult sear by cable.

So far—so good. **But even with both the primary and secondary locks UP, there's still a chance the seat could blast off.** That is, if something were to cause the sear at the top of the headrest to be pushed out, or the exposed parts of the primary and secondary firing cables were accidentally yanked, pulling the sear.

That's the reason for the next step.

To make sure your seat stays in the bird while it's on the ground, you're now ready to install the five ground safety pins attached to the red streamer. They all have a mighty important purpose.

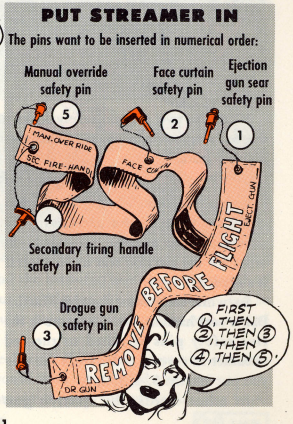
Take the ejection gun sear safety pin.



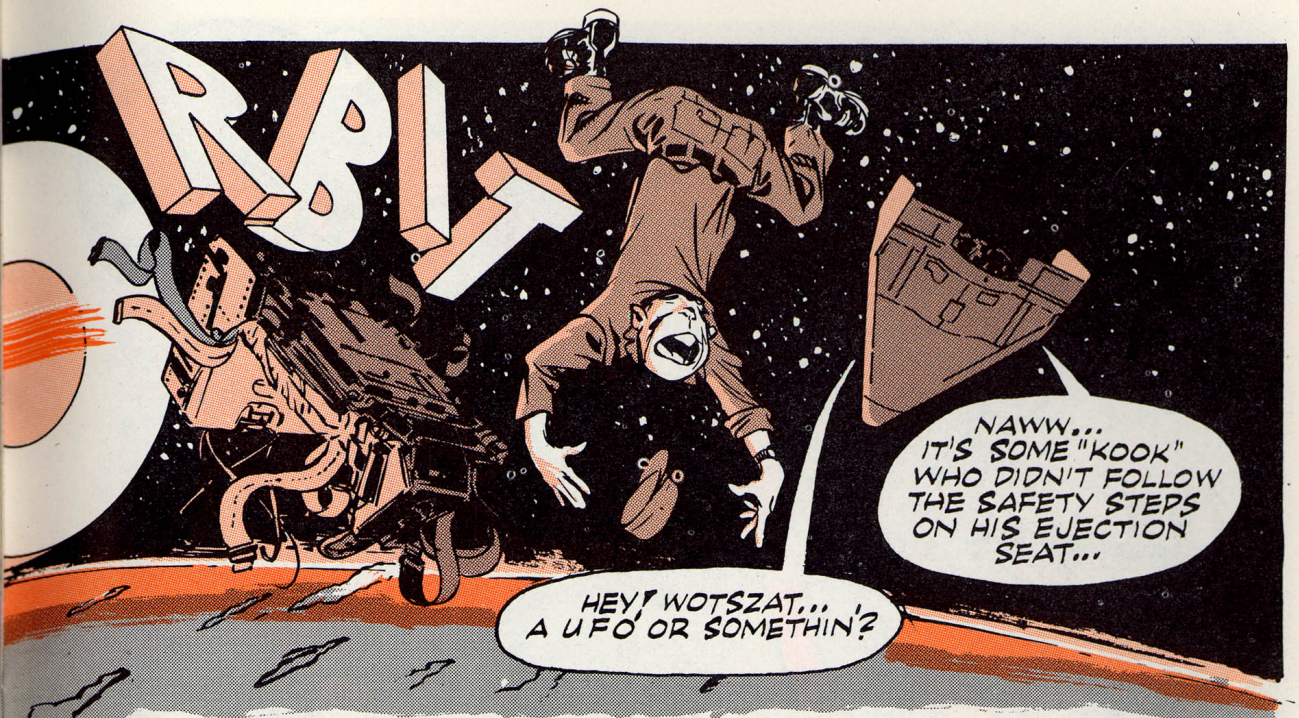
Once it's put in the hole in the sear, the sear can't be pulled forward—while the firing cable loops prevent it from being pulled rearward. And that gun isn't going to fire as long as the sear can't move in either direction from its safetied position.

PUT STREAMER IN

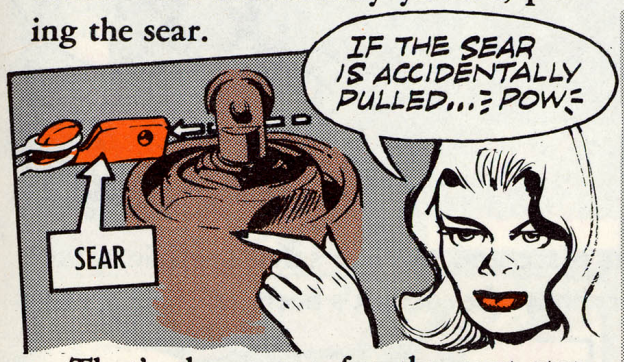
The pins want to be inserted in numerical order:



MORE



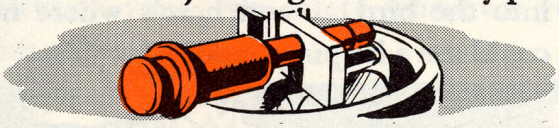
blast off. That is, if something were to cause the sear at the top of the headrest to be pushed out, or the exposed parts of the primary and secondary firing cables were accidentally yanked, pulling the sear.



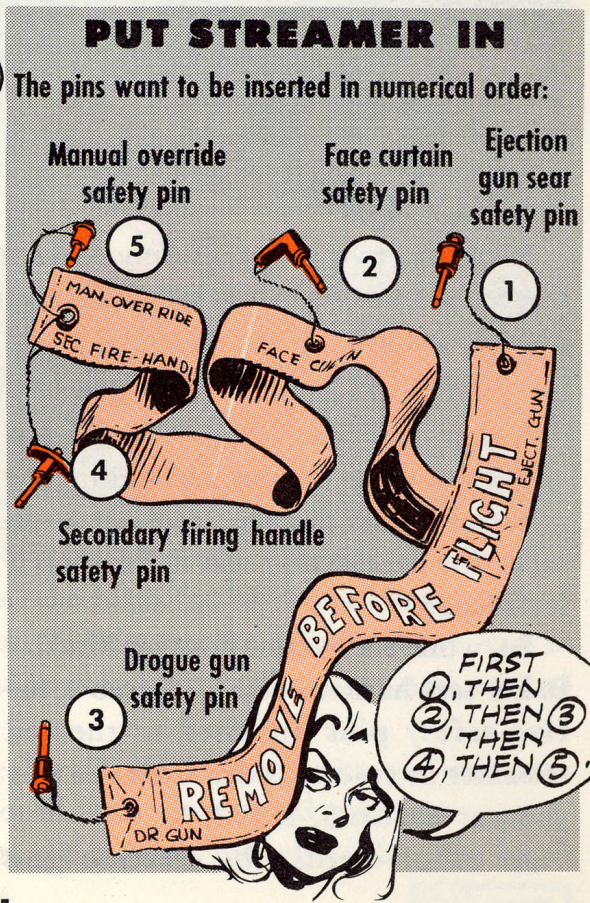
That's the reason for the next step.

To **make sure** your seat stays in the bird while it's on the ground, you're now ready to install the five ground safety pins attached to the red streamer. They all have a mighty important purpose.

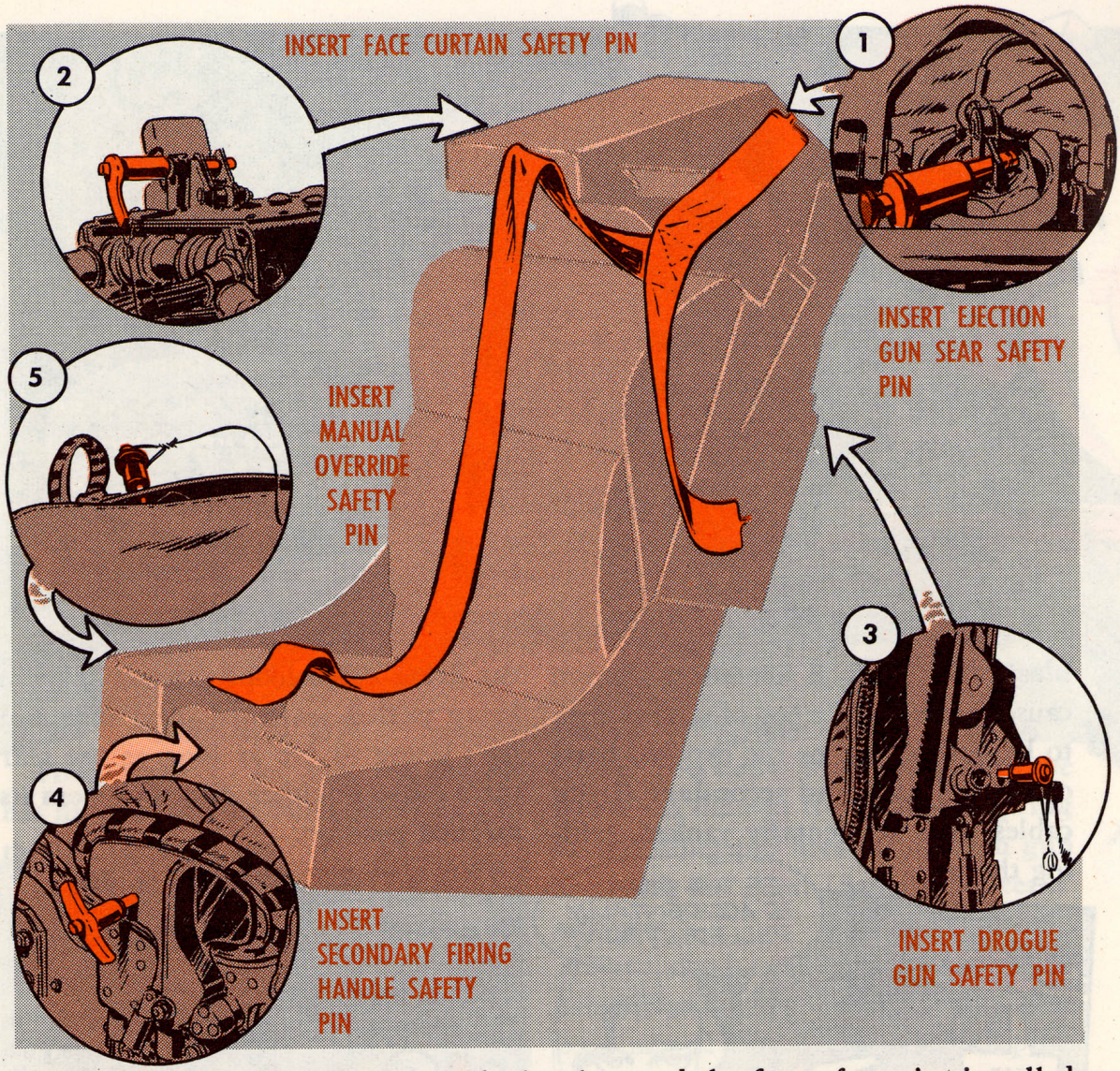
Take the ejection gun sear safety pin.



Once it's put in the hole in the sear, the sear can't be pulled forward—while the firing cable loops prevent it from being pulled rearward. And that gun isn't going to fire as long as the sear can't move in either direction from its safetied position.



PS MORE



With the two ground safety locks in place and the five safety pins installed, the red streamer will now remind everybody the cockpit's been safetied . . . but it's still loaded.

TAKE STREAMER OUT

Comes the time when your bird is about to take to the air again the streamer wants to come out—natch—in order for the ejection seat to do a job if it's needed.

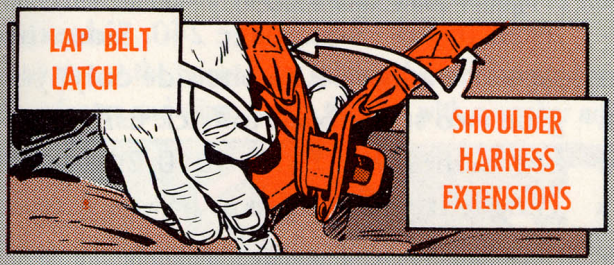
So, while the aviator dons his Martin-Baker seat harness, you just remove the five safety pins attached to the red streamer in reverse order from the way you put 'em in: 5, 4, 3, 2, 1.

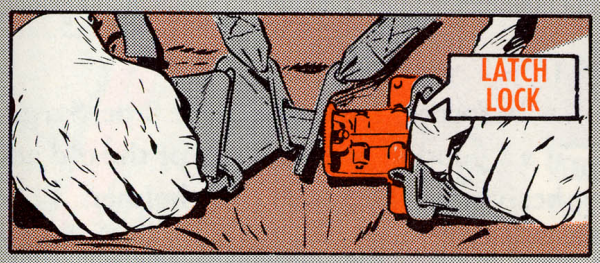
In other words, the ejection gun safety comes out last. But be sure you leave the primary firing handle safety latch and the secondary firing handle safety latch in the UP (locked) position. This means the seat can't be fired by accident when the aviator is strapped into the bird . . . and here's where he could use a helping hand!

SEAT HOOK-UP

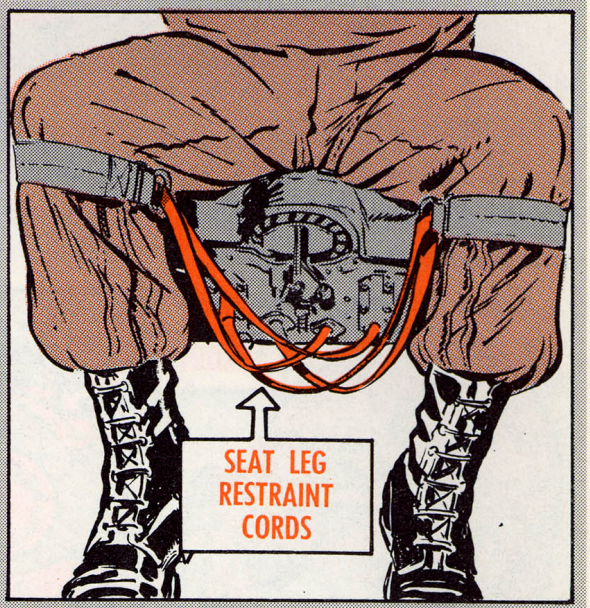
1 First, hook up the right and left quick disconnect straps.

2 Then the shoulder harness extensions are hooked onto the lap belt latch and the lap belt locked.

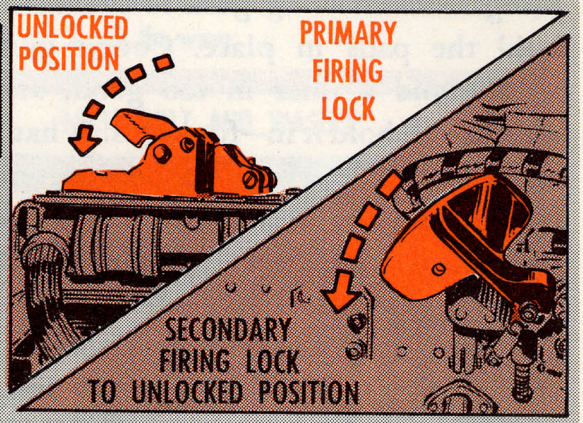




3 Next thread the seat leg restraint cords through metal rings on the fabric garters and plug them into the seat like so.



4 The last step is a solo act by the aviator, who unlocks both primary and secondary firing handles by flipping **down** the ground safety latches just before take off.



All of which proves that the Army and the manufacturer thought enough of your favorite throttle jockey to go all out for him on the safety side . . . not to mention your own safety whenever you're doing maintenance in and around the cockpit area.

But you don't want to be wary of the Martin-Baker seat when you are near it—just kind of "respectful", like you would with any loaded gun.

After all, it only takes one thoughtless act to blow the whole deal sky high!

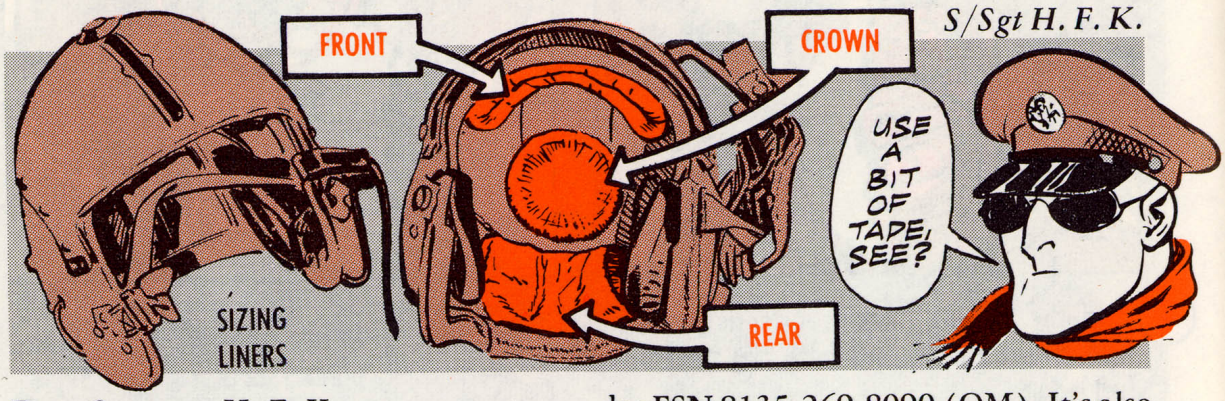
P.S. END

Dear Windy Windsock,

TM 10-8415-202-15 (2 Mar 60) on the APH-5 flying helmet lists replacement of the front, crown, and back sizing liners as a first-echelon job . . . so I'm stuck with it!

But what do I do with a liner that falls out all the time?

S/Sgt H. F. K.



Dear Sergeant H. F. K.,

Flight crew types have tried everything from chewing gum to shellac to hold the pads in place. 'Course gum **won't** hold a liner in too good, and shellac **will** hold it in—for keeps. What's needed is a happy medium. Something that'll hold the liners in but will also let you take them out for replacements without tearing up the liners.

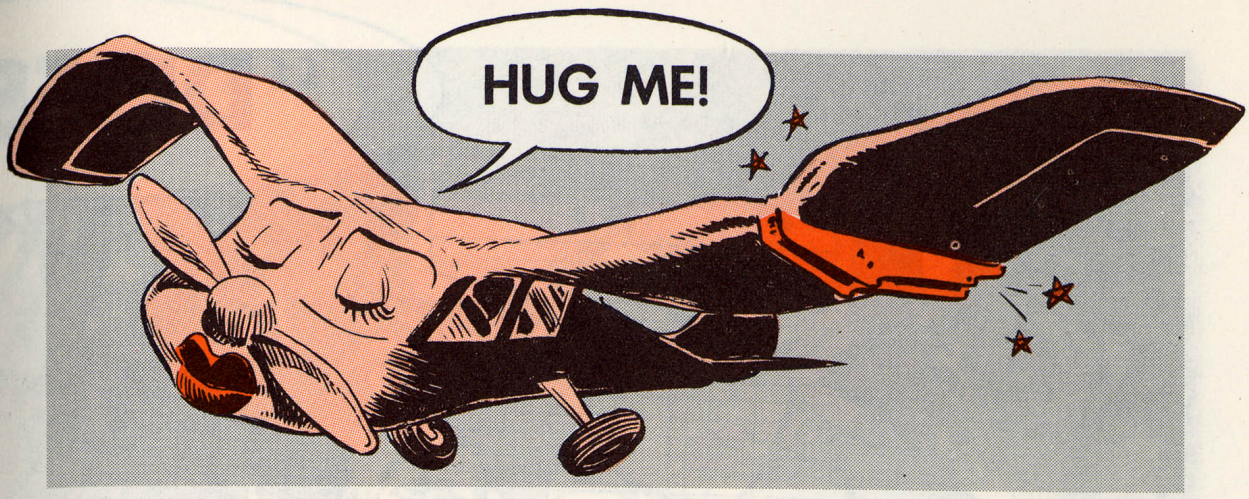
Your best bet is a strip or two of pressure-sensitive tape between each liner and the helmet. FSN 8135-559-6729, listed on page 238 of Federal Supply Catalog C6-18-SL (29 May 61), is just what the doctor ordered because it has adhesive on both sides. Price list C6-18-PL, shows it's a QM local purchase item, though.

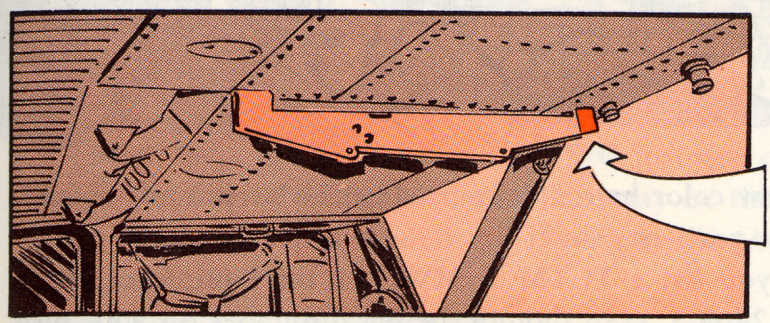
You may find it easier to get the 2-in wide pressure-sensitive tape stocked under FSN 8135-269-8090 (QM). It's also listed in C6-18-SL, page 240. Since this tape has adhesive on one side only, you glue two strips back to back using rubber adhesive, FSN 8040-266-0850 (Eng). If you happen to have any tents around, this adhesive is packed in tentage repair kit, FSN 8340-262-5767 (QM).

Before you make with the tape, Sarge, it's a good idea to get rid of the old adhesive on the liners and helmet. That way you can get a better bond. Water or alcohol on a piece of cotton cloth, plus a little elbow grease, should do the trick. Any other fluid cleaner might dissolve the foam plastic.

After putting a new sizing pad in, roll the surface with the ball of your hand or use some round object, like a bottle.

Windy Windsock





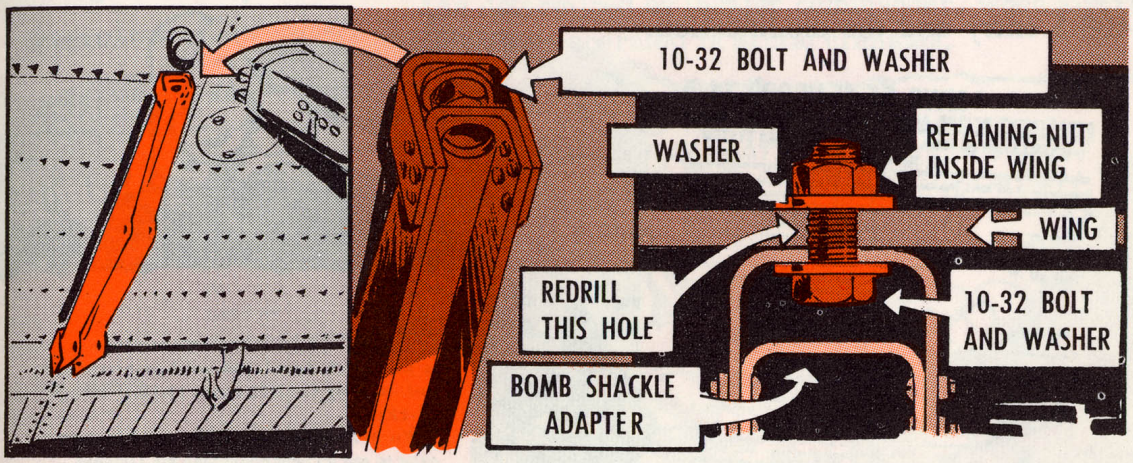
Dear Editor,

We've got a repair for loose bomb shackle adapters on the Bird Dog (L-19). The villain in this case is stripped female threads in the wing.

If you have this problem you take the adapters off and discard the bolts—but keep the washers. Then you drill the adapter bolt hole in the wing to get rid of the stripped threads and make way for a new retaining bolt, nut, and washer.

Next latch on to two 10-32nd bolts (long enough to take retaining nuts inside the wing), matching nuts, and washers.

Then mount the adapter by putting the old flat washer under the bolt head, and install the bolt through the adapter and wing. Secure the bolt with a washer and nut inside the wing.



From here on out the adapters will hug your bird like a long lost cousin.

The Ground Crew,
NJ ARNG, Linden Airport, N. J.

(Ed Note—Looks like a good fix, but get your CO's permission before you start the surgery.)

Does she, or doesn't she?

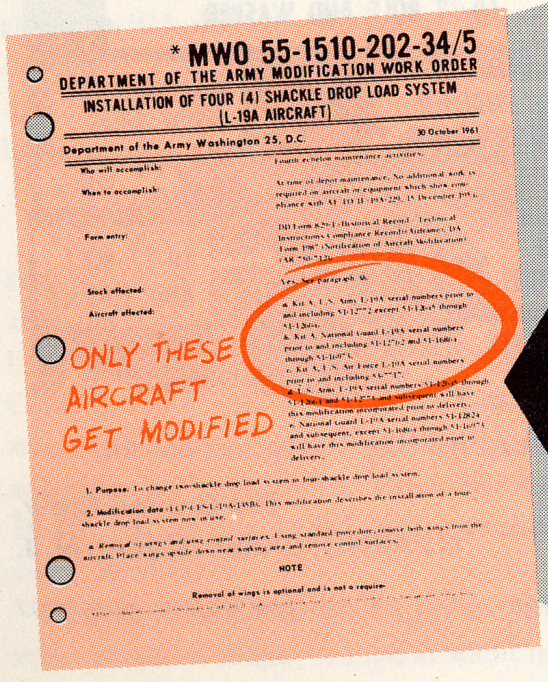
Not talkin' about the new color hair style sported by the latest hunk of feminine pulchritude to hit the post—no, sir.

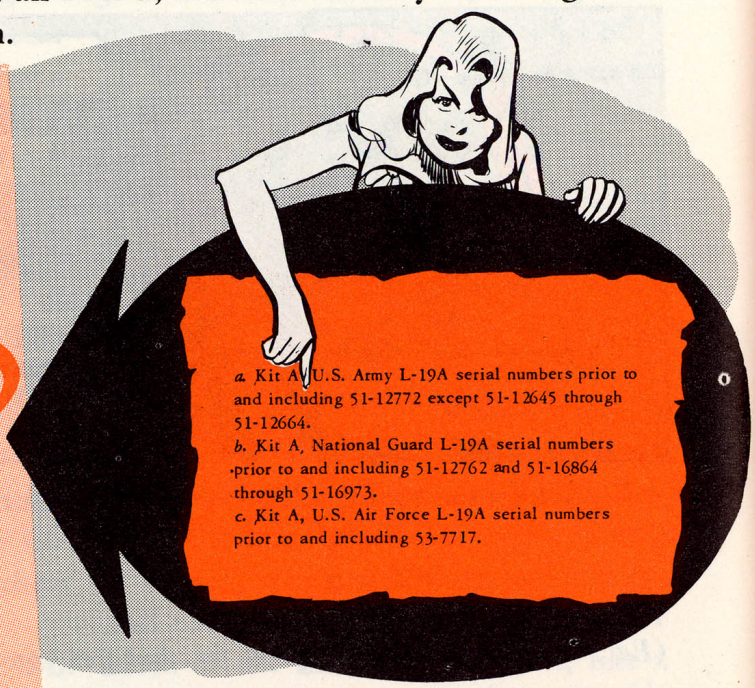
Talkin' about whether you list a TCTM or MWO on the Equipment Modification Record, DA Form 2408-5, even though the serial number for your bird is not listed on the modification.

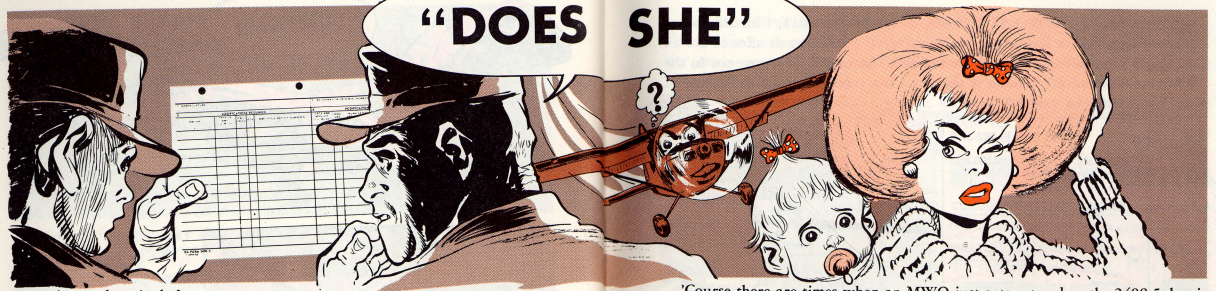
Some pencil pushers like to do their record keeping up brown, listing every MWO that comes across the pike, even if it doesn't apply to their bird.

'Taint necessary . . . might even get you gigged!

The straight poop is that any time you see a bunch of serial numbers listed in the Aircraft Affected paragraph of an MWO, those are the **only** birds to get the 2408-5 entry and the modification.







Does she, or doesn't she?

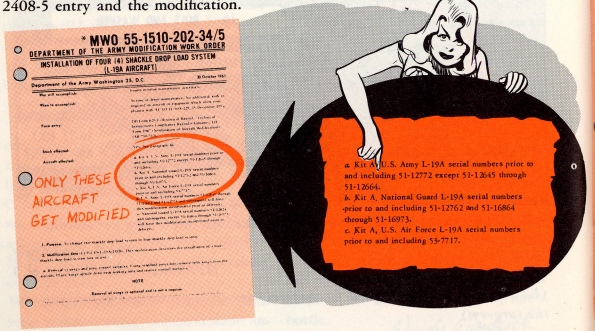
Not talkin' about the new color hair style sported by the latest hunk of feminine pulchritude to hit the post—no, sir.

Talkin' about whether you list a TCTM or MWO on the Equipment Modification Record, DA Form 2408-5, even though the serial number for your bird is not listed on the modification.

Some pencil pushers like to do their record keeping up brown, listing every MWO that comes across the pike, even if it doesn't apply to their bird.

'Taint necessary . . . might even get you gigged!

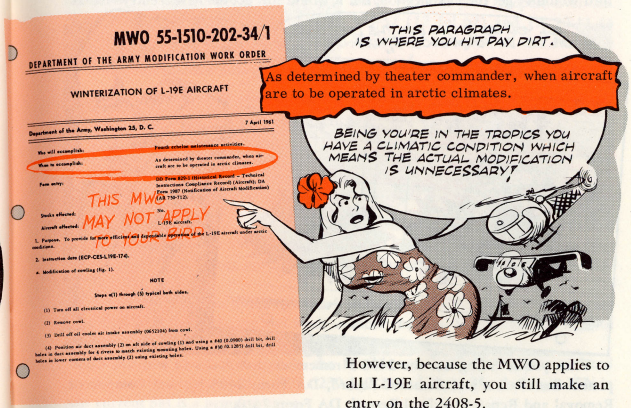
The straight poop is that any time you see a bunch of serial numbers listed in the Aircraft Affected paragraph of an MWO, those are the **only** birds to get the 2408-5 entry and the modification.



'Course there are times when an MWO just gets entered on the 2408-5, but it doesn't get the modification done. This may be the case, for example, when a large number of bird models are involved, like; All L-19E, All H-34, or All H-13, etc.

Let's take a f'rinstance or two.

Say you're stationed in the tropics with a Bird Dog (L-19E). Along comes MWO 55-1510-202-34/1 (7 Apr 61), "Winterization of L-19E Aircraft".



However, because the MWO applies to all L-19E aircraft, you still make an entry on the 2408-5.

MORE

'Course there are times when an MWO just gets entered on the 2408-5, but it doesn't get the modification done. This may be the case, for example, when a large number of bird models are involved, like; All L-19E, All H-34, or All H-13, etc.

Let's take a f'rinstance or two.

Say you're stationed in the tropics with a Bird Dog (L-19E). Along comes MWO 55-1510-202-34/1 (7 Apr 61), "Winterization of L-19E Aircraft".

MWO 55-1510-202-34/1

DEPARTMENT OF THE ARMY MODIFICATION WORK ORDER

WINTERIZATION OF L-19E AIRCRAFT

Department of the Army, Washington 25, D. C. 7 April 1961

Who will accomplish: Fourth echelon maintenance activities.

When to accomplish: As determined by theater commander, when aircraft are to be operated in arctic climates.

Form entry: DD Form 829-1 (Historical Record – Technical Instructions Compliance Record) (Aircraft); DA Form 1987 (Notification of Aircraft Modification) (AR 750-712).

Stocks affected: No.

Aircraft affected: L-19E aircraft.

THIS MWO MAY NOT APPLY TO YOUR BIRD

1. Purpose. To provide for more efficient and dependable operation of the L-19E aircraft under arctic conditions.

2. Instruction data (ECP-CES-L19E-174).

a. Modification of cowling (fig. 1).

NOTE

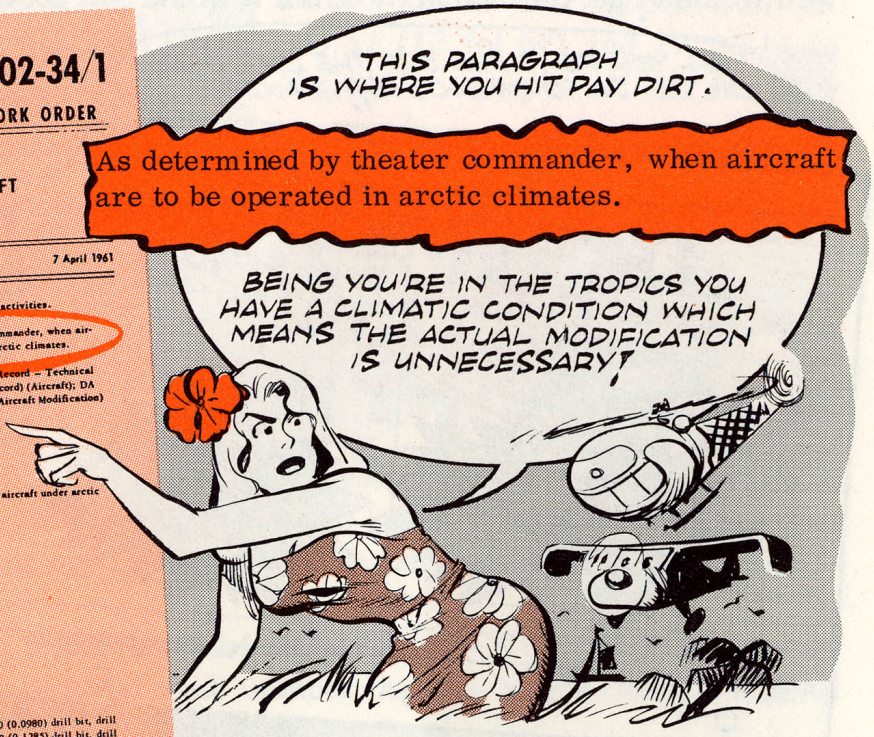
Steps a(1) through (5) typical both sides.

(1) Turn off all electrical power on aircraft.

(2) Remove cowl.

(3) Drill off oil cooler air intake assembly (0652104) from cowl.

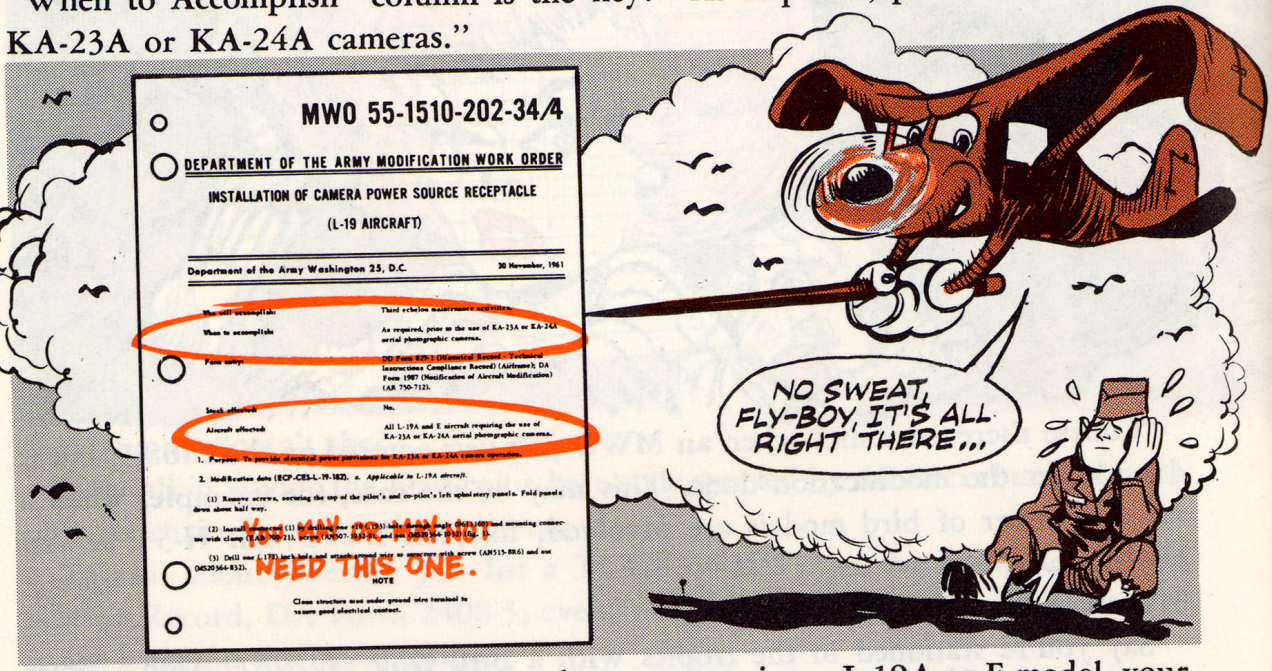
(4) Position air duct assembly (2) on aft side of cowling (1) and using a #40 (0.0980) drill bit, drill holes in duct assembly for 4 rivets to match existing mounting holes. Using a #30 (0.1285) drill bit, drill holes in lower corners of duct assembly (2) using existing holes.



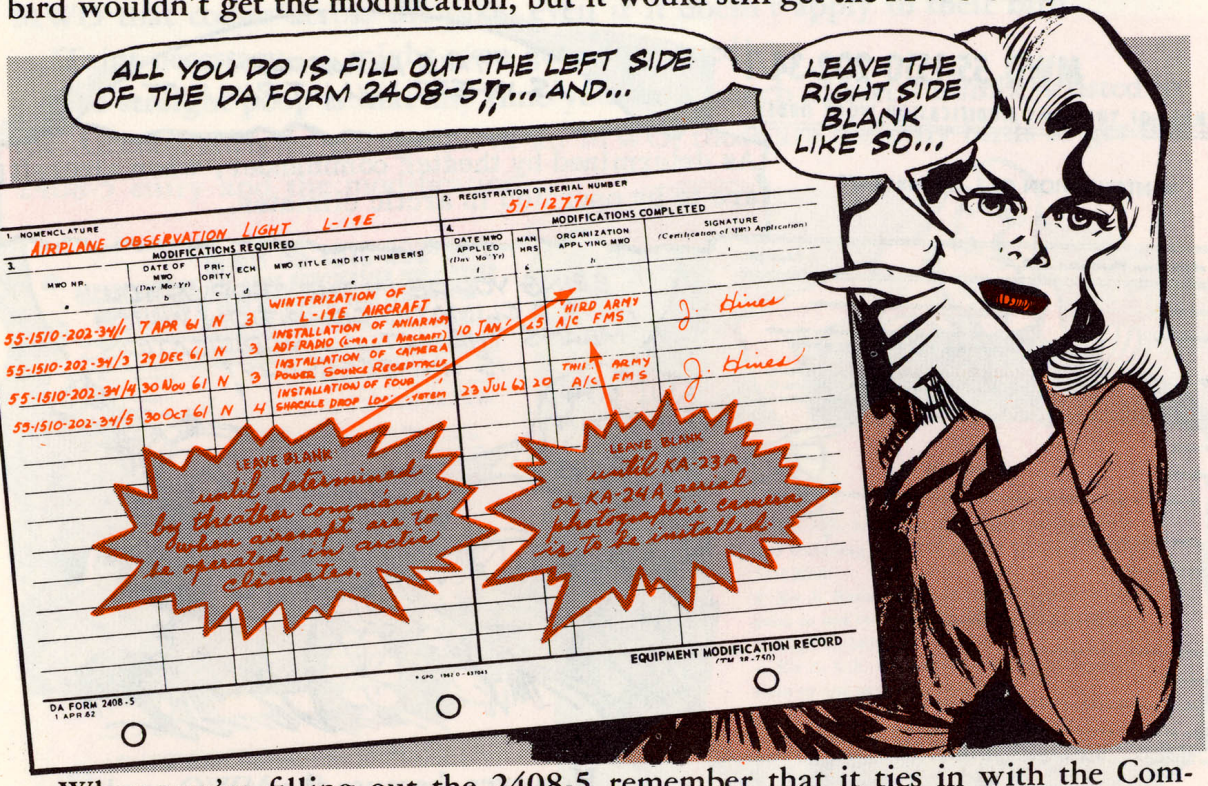
However, because the MWO applies to all L-19E aircraft, you still make an entry on the 2408-5.

PS MORE

Another example—MWO 55-1510-202-34/4 (30 Nov 61), "Installation of Camera Power Source Receptacle (L-19 aircraft)". The aircraft affected are all L-19A and E models requiring the use of KA-23A or KA-24A cameras. In the "When to Accomplish" column is the key: "As required, prior to the use of KA-23A or KA-24A cameras."



So, if you're not scheduled to use these cameras in an L-19A or E model, your bird wouldn't get the modification, but it would still get the MWO entry—natch.



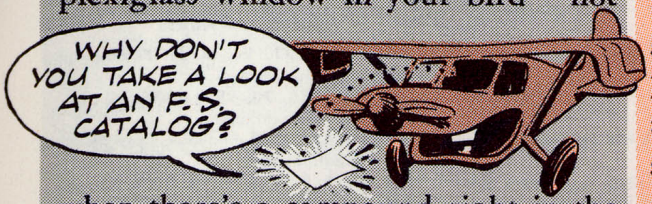
When you're filling out the 2408-5 remember that it ties in with the Component Installation and Removal Record, DA Form 2408-16, and Component Removal and Repair Overhaul Record, DA Form 2410.

All these forms are spelled out in TM 38-750 to give you a record keeping set up that cures one of the bugaboos that has plagued maintenance types for many years; namely, what's **supposed** to be installed in a bird, and what actually **has** been installed.

So-o-o . . . does your 2408-5 get the latest MWO entry or doesn't she? Could be—it all depends on what bird you're workin' on these days!

TIGHT SEAL

No need for you air types to scrounge zinc chromate putty, or make with a local purchase order, when you seal a plexiglass window in your bird — not

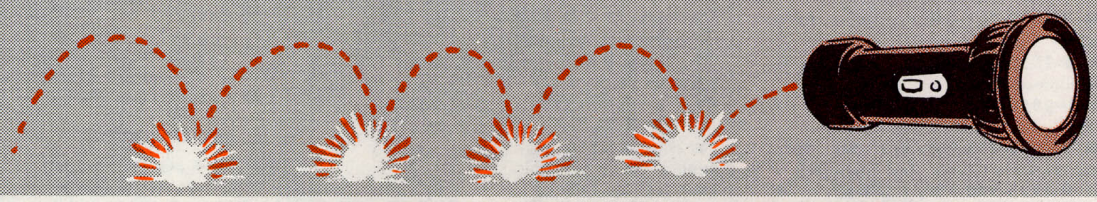


when there's a compound right in the supply system. Run your peepers over Federal Supply Catalog C5-1-SL (Federal Stock Class Group 80), for Sealing Compound, FSN 8030-611-3964 (P/N EC 612). Makes that plexiglass tight as a drum.

SLIPPERY BIRDS

You air types mounting aircraft at the crack of dawn for fueling or other maintenance want to give a thought to the early morning dew. That stuff is greased lightning under foot. But using your maintenance stands and ladders, along with always wearing rubber soled shoes or boots, puts the odds in your favor against winding up with your arm in a sling—or worse. If your outfit isn't authorized rubber soled shoes or boots yet, run your peepers over AR 385-32 (12 Jul 62) and TA 20-11 (5 May 61) . . . they're all the authority you need.

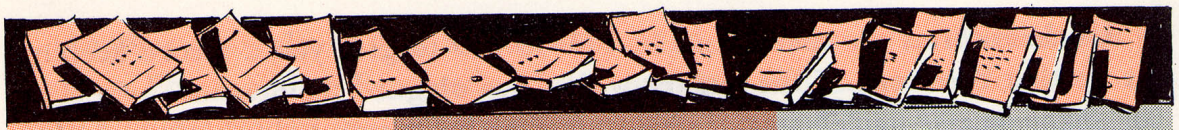
NEW A/C MECH'S TOOLS LIST



Watch the mails for SM 55-4-5180-A01 (30 Mar 62) if you want to keep your hand-receipt list current on the Aircraft Mechanic's Tool Kit, FSN 5180-323-4692.

This Transportation supply manual supersedes SM 9-4-5180-A70 and carries the latest nomenclature and stock number changes. You'll also find most of the tools pictured in the back of the new manual.

There's just one tool change . . . the flexible arm flashlight has been replaced by the standard type, which is FSN 6230-519-2109 (Eng). The flashlight FSN in the current SM is a printing error.



A selected list of recent publications of interest to Organizational Maintenance Personnel. This is a list compiled from recent Adjustant General's Distribution Center Bulletins.

TECHNICAL MANUALS

TM 3-4240-233-15 Jun Mask, CBR, Tank M14A2.
TM 3-4240-236-12 Sep Filter Unit, Gas Particulate, Tank, 12 CFM, M8A3.
TM 3-6665-210-20P Sep Alarm, Automatic, E41R3.
TM 5-2230-203-25P Aug Drilling Machine, Rail, Gasoline Engine, (Norberg Model CD).
TM 5-2410-205-10 Aug Tractor Full Tracked, IH Model TD-24.
TM 5-2410-205-20 Sep Tractor Full Tracked, IH Model TD-24.
TM 5-2410-211-15 Jul Tractor (Caterpillar Model D4).
TM 5-3431-200-15 Aug Welding Set, Arc, Inert Gas Shielded.
TM 5-3431-200-25P Aug Welding Set, Arc, Inert Gas (Westinghouse Model SA-135).
TM 5-3449-200-25P Aug Repair Parts & Special Tools, Sharpening Machine, Drill Steel (Ingersoll-Rand Model 40).
TM 5-3820-208-15 Aug Drilling Machine (Buffalo Springfield Model 71 SK-B).
TM 5-3825-202-20P Aug Distributor, water MacLeod Mdl W-1M5.
TM 5-4610-203-20P Sep Water Purification Unit, Met-Pro Model 3000-2700.
TM 5-6665-200-20P Sep Detecting Set, Mine.
TM 5-6675-230-25P Aug Level, 10" Telescope, Model 10-X.
TM 9-1400-250--10/3 Sep Nike-Ajax, Hercules, Hercules (Imp), System Description.
TM 9-1410-500-20P/1 Sep Hawk, TMP, Ammo.
TM 9-1430-250-20P/11/1 Aug Nike-Herc (Imp), Ground Con Equip.
TM 9-2330-202-14P Aug Trailer M101, M101A1, M116 & M116A1.
TM 9-2330-231-14P Aug Trailer, Ammo M332.
TM 9-2330-264-14P Aug Trailer, Air Conditioner: M 463.
TM 9-2350-217-20P Sep Howitzer, S-P: T119E1 and Howitzer, S-P: T196E1.
TM 9-4935-253-20P/3/2 Sep Nike-Herc, Nike-Herc (Imp), Test Equip.
TM 9-4935-500-20P/1 Sep Hawk, TMP, Test Equip.
TM 9-6910-203-14 Sep Carbine, Machine Gun and Rifle Training Aids.
TM 11-4920-201-12 Sep.
TM 11-4920-209-14 Aug Table Scorsby T100925, Adapter Scrosby T100945 (Sperry).
TM 11-5805-224-20P Aug Modem, Telephone, TA-219/U.
TM 11-5805-245-20P Sep Power Supply PP-827/U.
TM 11-5805-286-25P Aug Repeater, Telephone, AN/MCC-3.
TM 11-5820-265-12P Aug Radio Transmitter T-417/GR.
TM 11-5820-363-12P Aug Transmitter, Radio T-278/U.
TM 11-5820-469-20P Aug Radio Terminal Set AN/TRX-80.
TM 11-5840-243-20P Aug Antenna Group OA-1124/FPS.
TM 11-5895-287-20P Aug Fire Unit integration Facilities AN/FSA-25, AN/FSA-25A.
TM 11-5895-331-20P Aug Recording Set, Cathode-Ray Tube AN/ASA-34.
TM 11-5935-205-15P Aug Connector, Receptacle, Electrical, U-187/G.
TM 11-5965-227-15P Aug Handset H121/U.
TM 11-5965-267-15P Aug Headset, Electrical H-16/U.
TM 11-5985-233-25P Aug Antenna AB-377/TLR.
TM 11-6110-201-15P Aug Distribution Box J-1077/U, J-1077A/U.
TM 11-6115-213-20P Oct Generator Set, PU-422/U.
TM 11-6125-220-20P Aug Motor-Generator PU-543/A.
TM 11-6130-211-20P Aug Power Supplies PP-1097A/G & PP-1097B/G.
TM 11-6130-230-20P Aug Charger, Battery PP-2359/G.
TM 11-6140-200-15 Aug Battery, Storage, BB-401/U.
TM 11-6625-258-20P Aug Signal Generator SG-299/U, SG-299A/U.
TM 11-6625-285-20P Aug Oscilliscopes OS-46/U, OS-46A/U, OS-500/U, & OS-5001A, B/U.
TM 11-6625-315-20P Sep Test Set Groups, Radar, OA-2228/TPS-25, OA-2228A/TPS-25.
TM 11-6625-502-25P Aug Test Set, Electronic Circuit, Plug-In Unit AN/GSM-51.
TM 11-6625-511-12 Aug Test Target Visual AN/AAM-9, Test Target Therman AN/AAM-10, and Test Table, Optical AN/AAM-13.
TM 11-6625-526-12 Aug Test Set, Therman Sensitivity AN/AAM/-11.
TM 11-6660-200-20P Aug Wind Measuring Set AN/GMQ-11.
TM 11-6665-208-20P Aug Radiac Set AN/PDR-54.
TM 11-6730-210-10 Aug Projection Set, Motion Picture Sound AS-7A.
TM 11-6730-210-20 Aug Projection Set, Motion Picture, Sound AS-7A.
TM 11-6740-244-25P Aug Printer, Contact, Photographic, EN-10 (1) & Printer PH-192.
TM 55-405-2 Aug AK Hardware and Materials.
TM 55-450-1 Sep (L-20).
TM 55-450-2 Sep (L-19).
TM 55-1510-206-10 Jun (AC-1).
TM 55-2210-213-20P Aug Loco Dsl 56½", 100 Ton, 0-4-4-0, Alco Eng Mod 539, 660 HP.

LUBRICATION ORDERS

LO 5-3895-221-15-1 Jul Mixer, Concrete, Trailer Mounted.
LO 5-4310-241-15 Jul Compressor Champion Model LP-512-Eng.
LO 5-4310-242-15 Aug Compressor Reciprocating: Air 175PSI; Hand Tk Mtd: Gas Driven.
LO 9-2350-215-10 Oct Tank, M60A1 W/E.

MODIFICATION WORK ORDERS

MWO 9-2300-224-20/5 Aug Car Per, Arm M113 Enl Gear Box Oil Ser Op.
MWO 9-2300-224-20/6 Sep APC M113; Inst Pl on Distr.
MWO 9-2350-215-20/7 Sep Tank M60.
MWO 10-1671B-1 Aug 7500-lb Clarktor Warehouse Tractor (MHE 155).

SUPPLY MANUALS

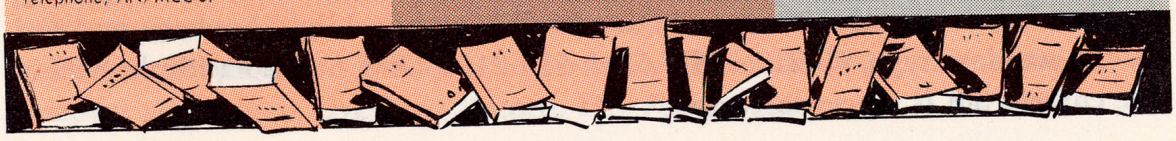
SM 3-C68P-M1, Vol. 1 Jul Petroleum, Petroleum Base Products.
SM 5-1-5420, 30, 45 Sep Prefabricated Structures and Scaffolding.
SM 5-4-4210-504 Aug Repair and Refill Kit, Fire Extinguisher.
SM 5-4-5180-519 Sep Tool Kit, Mason and Concrete Finisher's.
SM 5-4-5180-544 Sep Tool Kit and Test Equipment, Gas Turbine Engine.
SM 9-4-1375-R02 Sep Training Aid, Demolition Set: No 2, Platoon, DVC5-12 (1375-83-2539).

TECHNICAL BULLETINS

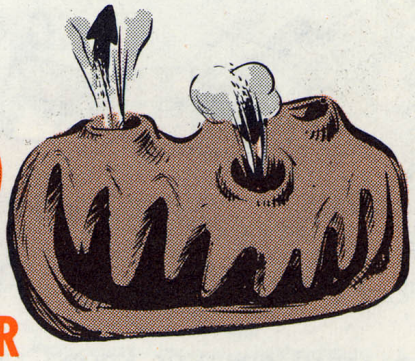
TB AVN 23-5-1, C2 Sep EIR Digest.
TB TVN 23-10 Sep A/C Accessory Replacement and Reuse Procedures.
TB AVN 23-46 Sep Ident, Insp. Test and Storage Rubber Materials, etc.
TB AVN 23-69 Sep.
TB ENG 240 Sep Inspection, compressors.
TB TC 7 Sep Safe Transport of Radioactive Materials.
TB 9-2300-229-10/1 Aug Truck, Tank Fuel Ser M49C, M217C Oper Maint Filter Separ Kit.
TB 55-22 Aug Trans Gd Tk, Shop Van, M109.
TB 55-23 Aug Trans Gd, Dump, M47.
TB 55-25 Aug Trans Gd, Cargo, M34.
TB 55-26 Aug Trans Gd, Wrecker, M108.

MISCELLANEOUS

DA Form 12-4 Sep Requirements for ID of DA Administrative Publications, other than Regulations & Circulars.
Sig 7 & 8 AM-1907/FSG-1 Aug.
Sig 7 & 8 AM-1908/FSG-1 Aug.
Sig 7 & 8 C-2457/FSG-1 Aug. Track Stick Unit C-2457/FSG-1.
Sig 7 & 8 TD-222/FSG-1 Aug.
SB 1-15-11 Aug Marking & Tagging TC Items.
SB 11-547 Aug Authorization of Additional Tool Items to Supplement Tool Kit TK-88/U When Required for Vehicular Installation of Radio Equipment.



THE MAD COMPRESSOR



The Champion CE 36-10 air compressor is easy to live with in every way but one.

It'll put out 175 PSI at 25 CFM as long as you keep its two noses cleaned, and lube it like it says in the LO.

The one time this Champion is real touchy about how you handle it is when you replace a valve—or a valve part— in the air compressor.

This is a time to do nothing until you ask yourself certain questions, and double-check the answers. F'rinstance—

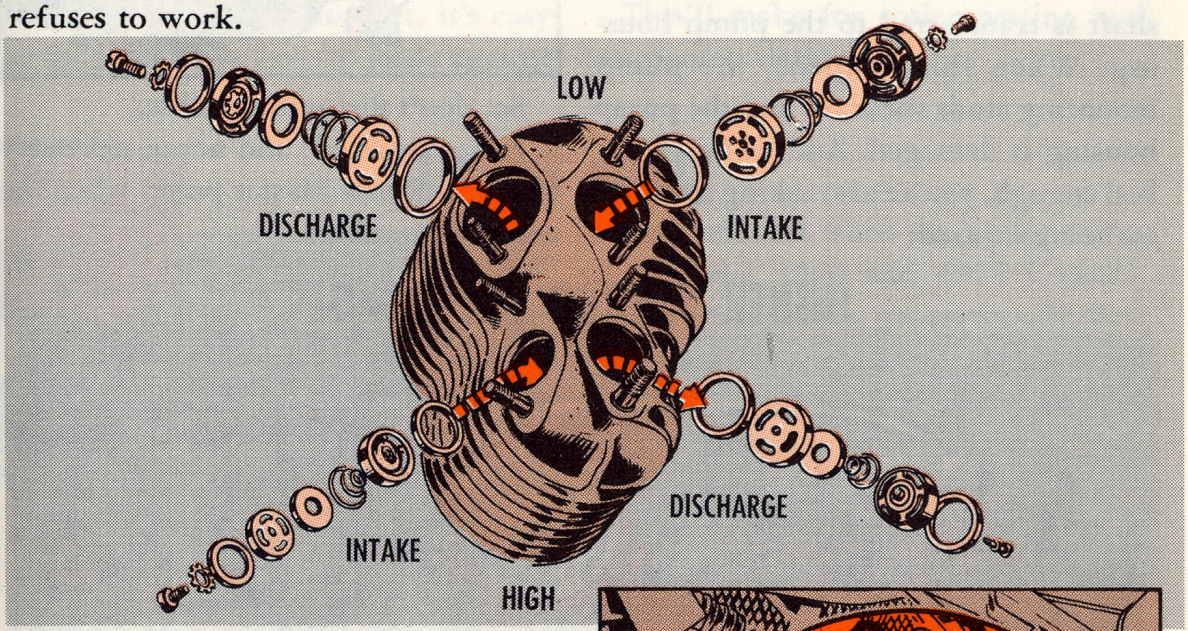
IS IT A DISCHARGE VALVE, OR AN INTAKE VALVE?

Both types look alike, they're the same size, and some parts are common to both. But they're NOT interchangeable.

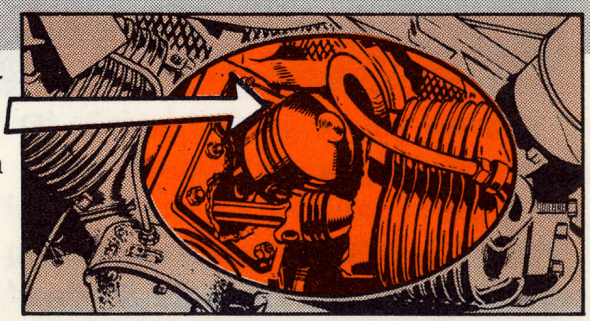
MUST THE VALVE FACE UP, OR MUST IT FACE DOWN?

In this unit, intake valves face down. Exhaust valves face up. They'll fit either way, but they won't work when faced the wrong way.

You'll be lucky, in fact, if a valve that's installed wrong just sits there and refuses to work.

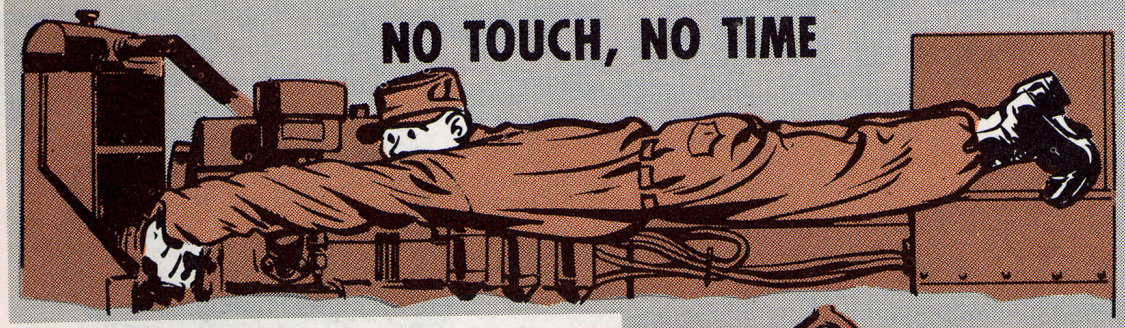


Pull this blooper with one of the high-pressure discharge valves—and it'll tear up the cylinder block like the one shown here.



MORAL: Never low-rate the power of a mad compressor.

NO TOUCH, NO TIME

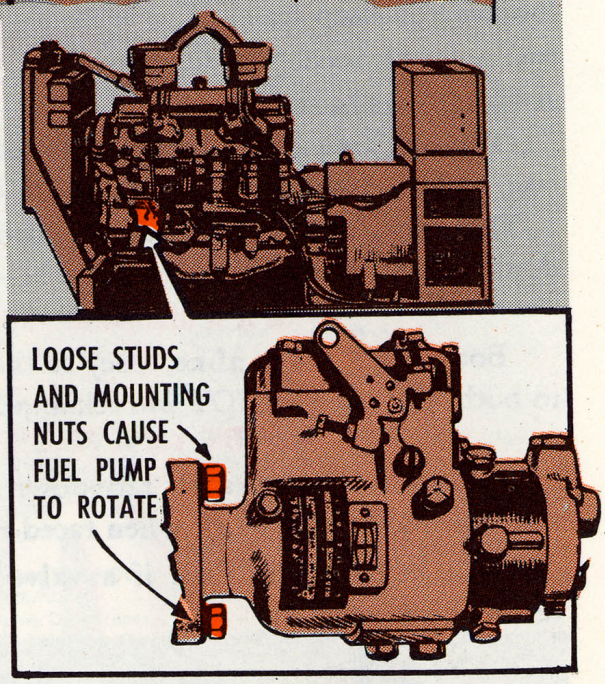


A sharp operator knows the value of good timing.

He also knows when the situation calls for touch or no-touch.

That's why savvy operators with diesel engines using Roosa-Master fuel injection pumps keep hands off and never attempt to time the pump when the engine's running.

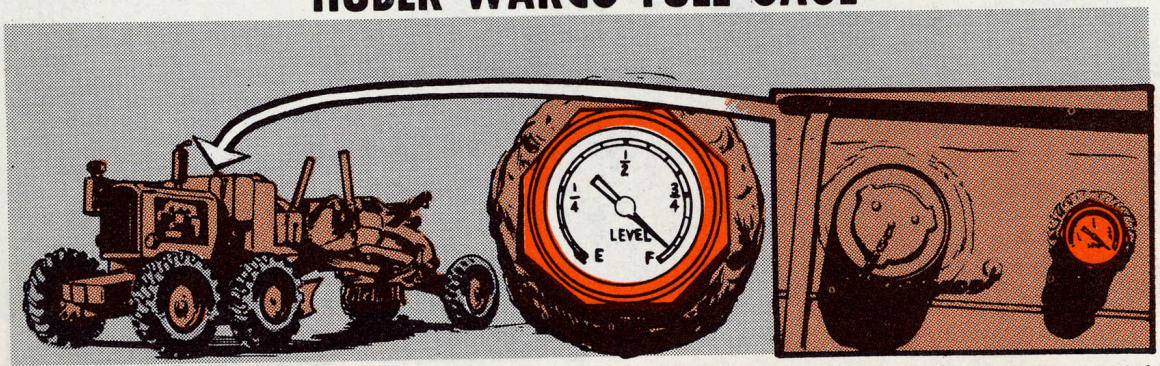
In order to time the pump, you have to loosen the mounting nuts at the pump flange. This throws the pump out of line and the rotational force of the drive shaft is transferred to the pump housing. When this happens, the pump mounting studs shear off and the pump housing is damaged. And, if that's not bad enough, you're also taking a chance on being injured.



So, don't flirt with trouble.

Keep hands off, and never, never try to time a Roosa-Master pump when the engine's running.

HUBER-WARCO FUEL GAGE



You say you've got a fresh-air 4D Huber-Warco grader that needs a new fuel gage?

Then you DON'T use the number in your -20P manual. That's the Stewart-Warner electrical unit that comes with winterized rigs.

What you DO want is the Rochester mechanical fuel gage, and the stock number is (51240) 3200-C33. Got it?

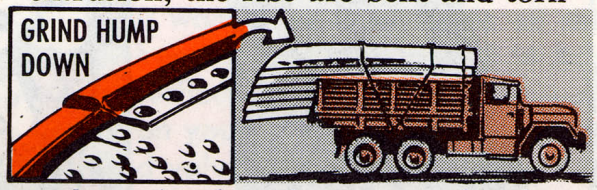
GRIND 'EM SMOOTH

Pardon—but is your protrusion showing?

Give your half-section ponton boats with aluminum hulls a look-see. These are the pontons that're part of the raft section of your light tactical floating bridge.

Some of them have a keel extrusion which juts out about ¼-inch — you'll find it above the bow casting where the keel and bow meet.

When you nest the half sections in groups of eight for transport, it's easy for the keel of one boat to jostle against the traverse ribs of the boat directly above it. With an assist from the keel extrusion, the ribs are bent and torn—

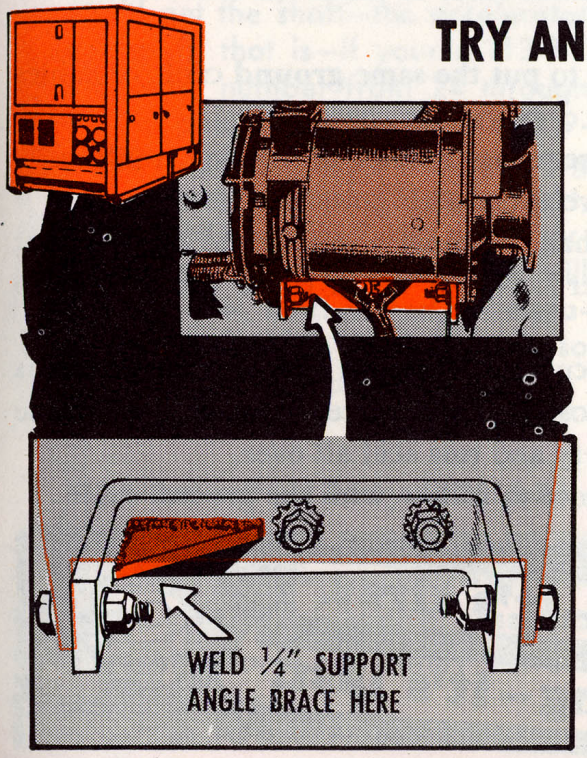


and another boat is put out of action.

No sweat to taking the hump out of your troubles. Just grind down this protrusion until you get a smooth curve between the keel and bow.

This'll make for cosier nesting and less ponton damage.

TRY AN ANGLE



Hear tell that when you're operating your Model 4060 and 4070 Consolidated Diesel electric generators, the battery charging generator (alternator) mounting bracket vibrates on one end.

This vibration causes the stud nuts to work loose.

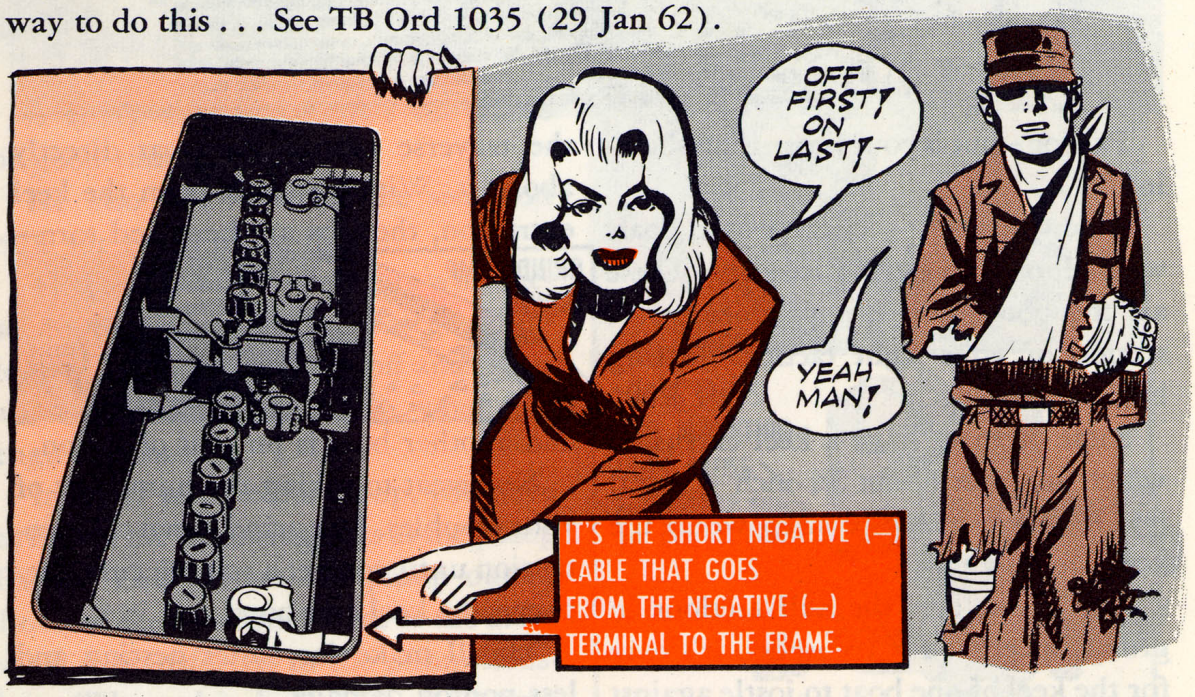
Since the AC generator bracket is mounted to the engine block by studs and nuts located at the center and front end of the bracket, this leaves the rear end of the bracket free to vibrate.

You can keep the bracket from doing a shimmy by welding a ¼-in support brace to the rear part of the bracket.

FIRST THEN LAST

Before you start to work on certain jobs in your Ordnance vehicles you've got to shut off the direct juice from their 24-volt electrical system.

Just removing the battery cables will do the trick, but there's a right and wrong way to do this . . . See TB Ord 1035 (29 Jan 62).



To disconnect 'em—

Always take the **ground**—repeat ground-cable or cables (if more'n one) off FIRST.

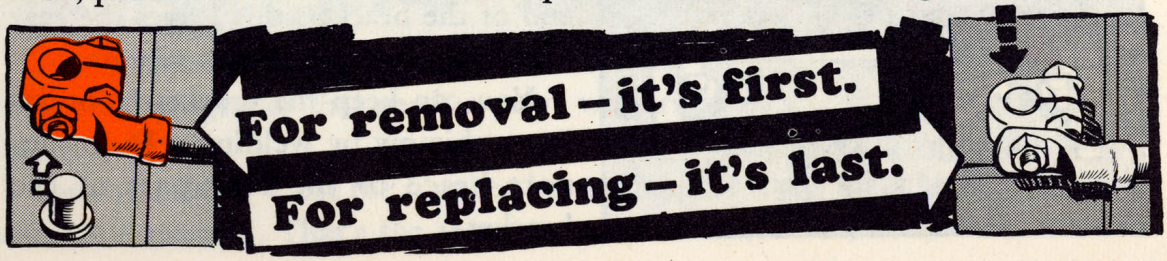
Coupling 'em back up? Then be sure to put the same **ground** cable or cables back on LAST.

To ignore this coupling-uncoupling sequence may be borrowing troubles.

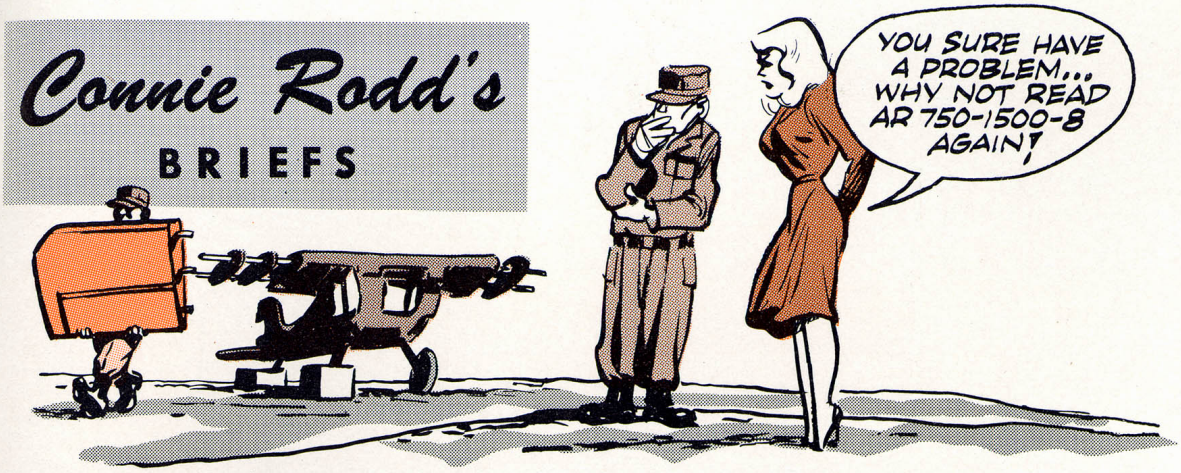
If the wrench should ground to the vehicle (with ground cable still on) it'll get "red hot" and if you can't drop it (hand freezes) you may end up with that famous Texas brandin' job done on 'er . . . or—it could cause the battery to blow up.

The shorted wrench puts a terrific current draw on the battery (same as laying the wrench across the battery posts). This creates a lot of heat inside the battery—enough to explode the battery and toss acid all over.

So, please to concentrate on the sequence to follow with the ground cable . . .



Connie Rodd's BRIEFS



Opps

If you've picked up TM 9-1375-203-12, "10-Cap-Capacity Handle Operated Blasting Machine," dated 14 Sep 61—check out paragraph 16c (1), where it says "solvents are flammable and should be used near open flame." Make a note to put a "not" after the word should . . . so it reads "solvents are flammable and should **not** be used near open flame." Natch, solvents and fire don't mix, so chalk this up as a printer's mistake.

New M113 shaft

You'll get the shaft—the accelerator pedal shaft, that is—if your M113 PC has a serial number from 24 through 931. The poop is in Urgent MWO 9-2300-224-20/1 (Jul 62). When ordering the new parts or any replacement part, cite this MWO and SB 9-150 as authority. Your tracked vehicle mechanic will put on the new, hard-coated, accelerator pedal shaft guide which is made so it won't corrode and bind.

It's for oil

Been wondering what to do all this time—because MWO Y75-W68 (4 Aug 60) modified the cam operated shut-off valve on your Nike-Hercules launcher? The old valve had a grease fitting that you used to shoot in GAA . . . and the new one just has what looks like an oil-fill hole. That's what it is all right. And you squirt in some PL lubricating oil monthly.

Look before shooting

Is your shootin' iron the M65 280-mm motorized heavy gun or maybe one of these three self-propelled weapons: M44 155-mm howitzer, M53 155-mm gun or M55 8-in howitzer? Then lend an eye or two. You know that the M34 firing mechanism in the weapons has no safety and the primer can be fired with the breechlock in any position. So . . . please to make sure that the breechlock is closed and the breech operating lever is locked before you put in the primer.

Caution . . . M15 breathing apparatus users

If you haven't yet had your M15 BA modified per MWO 3-310-35/1, **DON'T!** This MWO has been suspended because the audible alarm behaves erratically.

If your breathing apparatus has been modified, red tag it, and turn it in to your maintenance support outfit as soon's possible. They'll remove the alarm and safety valve and restore the breathing apparatus to usable condition.

Would You Stake Your Life on the Condition of Your Equipment?

PETROLEUM-BASE HYDRAULIC FLUID EATS THE INNARDS OUT OF RUBBER LINES AND PARTS—
SO, USE BRAKE FLUIDS WITH FEDERAL SPEC.

VV-F-451A
VV-F-910
ONLY!!